Service
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190V9FB/97(1) 190V9FB/93(1)
190V9FB/27(1) 190V9FB/94(1)
190V9FB/05(1) 190V9FB/93(2)
190V9FB/00(1) 190V9FB/94(2)
190V9FB/62(1)

Service Manual

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SAFETY NOTICE

ANY PERSON ATTEMPTING TO SERVICE THIS CHASSIS MUST FAMILIARIZE HIMSELF WITH THE CHASSIS AND BE AWARE OF THE NECESSARY SAFETY PRECAUTIONS TO BE USED WHEN SERVICING ELECTRONIC EQUIPMENT CONTAINING HIGH VOLTAGES.

CAUTION: USE A SEPARATE ISOLATION TRANSFOMER FOR THIS UNIT WHEN SERVICING

REFER TO BACK COVER FOR IMPORTANT SAFETY GUIDELINES

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飛利浦 PHILIPS

Revision List

Version	Release Date	Revision History
A00	Apr.02, 2008	Initial release, Draft Version
A01	Apr.10, 2008	Add CTV Model 190V9FB/27, 190V9FB05 and 190V9FB/00
		Add CTV Model 190V9FB/97 and it's Philips 12NC
A02	Apr.17, 2008	Add two new panels for 190V9FB/97
A03	Apr.30, 2008	Add CTV Model 190V9FB/93 and 190V9FB/94
A03	May.15, 2008	Perfect Philips 12NC for 190V9FB/93 and 190V9FB/94
A04	Aug.10.2008	Add panel for 190V9FB/93

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Important Safety Notice

Proper service and repair is important to the safe, reliable operation of all Philips Company Equipment. The service procedures recommended by Philips and described in this service manual are effective methods of performing service operations. Some of these service operations require the use of tools specially designed for the purpose. The special tools should be used when and as recommended.

It is important to note that this manual contains various CAUTIONS and NOTICES which should be carefully read in order to minimize the risk of personal injury to service personnel. The possibility exists that improper service methods may damage the equipment. It is also important to understand that these CAUTIONS and NOTICES ARE NOT EXHAUSTIVE. Philips could not possibly know, evaluate and advise the service trade of all conceivable ways in which service might be done or of the possible hazardous consequences of each way. Consequently, Philips has not undertaken any such broad evaluation. Accordingly, a servicer who uses a service procedure or tool which is not recommended by Philips must first satisfy himself thoroughly that neither his safety nor the safe operation of the equipment will be jeopardized by the service method selected.

Hereafter throughout this manual, Philips Company will be referred to as Philips.

WARNING

Use of substitute replacement parts, which do not have the same, specified safety characteristics may create shock, fire, or other hazards.

Under no circumstances should the original design be modified or altered without written permission from Philips. Philips assumes no liability, express or implied, arising out of any unauthorized modification of design.

Servicer assumes all liability.

FOR PRODUCTS CONTAINING LASER:

DANGER-Invisible laser radiation when open. AVOID DIRECT EXPOSURE TO BEAM.

CAUTION-Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

CAUTION -The use of optical instruments with this product will increase eye hazard.

TO ENSURE THE CONTINUED RELIABILITY OF THIS PRODUCT, USE ONLY ORIGINAL MANUFACTURER'S REPLACEMENT PARTS, WHICH ARE LISTED WITH THEIR PART NUMBERS IN THE PARTS LIST SECTION OF THIS SERVICE MANUAL.

Take care during handling the LCD module with backlight unit

-Must mount the module using mounting holes arranged in four corners.

-Do not press on the panel, edge of the frame strongly or electric shock as this will result in damage to the screen.

-Do not scratch or press on the panel with any sharp objects, such as pencil or pen as this may result in damage to the panel.

-Protect the module from the ESD as it may damage the electronic circuit (C-MOS).

-Make certain that treatment person’s body is grounded through wristband.

-Do not leave the module in high temperature and in areas of high humidity for a long time.

-Avoid contact with water as it may a short circuit within the module.

-If the surface of panel becomes dirty, please wipe it off with a soft material. (Cleaning with a dirty or rough cloth may damage the panel.)

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1. Monitor Specifications

LCD PANEL	
• Type	TFT LCD
• Screen size	19" visual
• Pixel Pitch	0.294 x 0.294 mm
• LCD Panel type	1280 x 1024 pixels R.G.B. vertical stripe Anti-glare polarizer, hard coated
• Effective viewing area	376.3 x 301.1 mm
• Display Colors	16.7m
SCANNING	
• Vertical refresh rate	56 Hz-76 Hz
• Horizontal Frequency	30 kHz - 83 kHz
VIDEO	
• Video dot rate	140 MHz
• Input impedance	
- Video	75 ohm
- Sync	2.2K ohm
• Input signal levels	0.7 Vpp
• Sync input signal	Separate sync Composite sync Sync on green
• Sync polarities	Positive and negative
• Tilt	-5° ~ 20°
• Power supply	100 ~ 240 VAC, 50/60 Hz
• Power consumption	<36 W* (typ.)
• Temperature	0° C to 40° C (operating) -20° C to 60° C (storage)
• Relative humidity	20% to 80%
• System MTBF	50K hours (CCFL 40K hours)
• Cabinet color	190V9FB: Black

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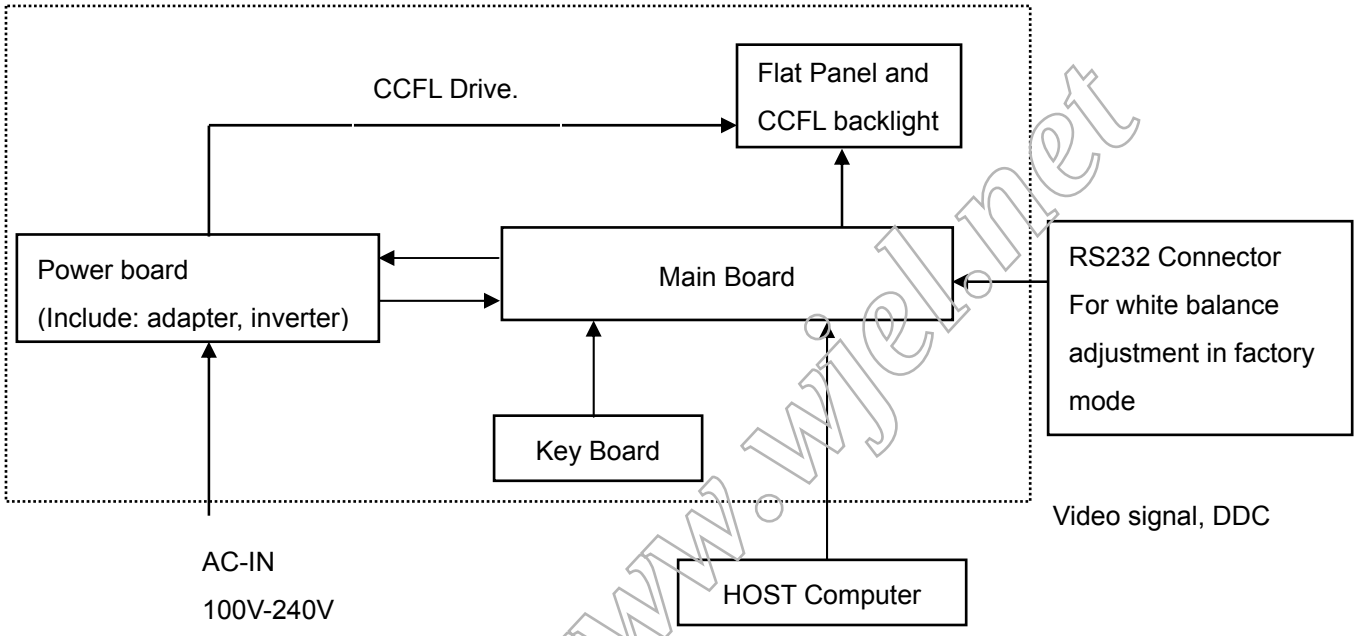
2. LCD Monitor Description

The LCD monitor will contain a main board, a power board and a key board which house the flat panel control logic, brightness control logic and DDC.

The power board will provide AC to DC Inverter voltage to drive the backlight of panel and the main board chips each voltage.

Monitor Block Diagram



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3. Operating Instructions

3.1 General Instructions

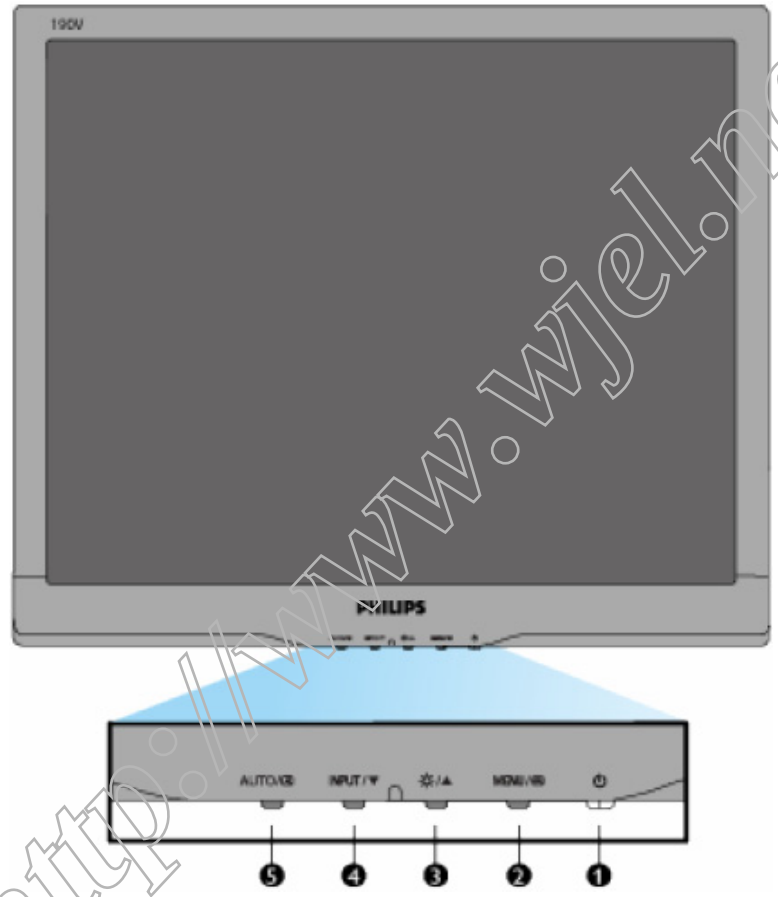
Press the power button to turn the monitor on or off. The other control buttons are located at the front of the panel of the monitor.

By changing these settings, the picture can be adjusted to your personal preferences.

- The power cord should be connected.
- Connect the video cable from the monitor to the video card.
- Press the power button to turn on the monitor, the power indicator will light up.

3.2 Control Buttons

Front View



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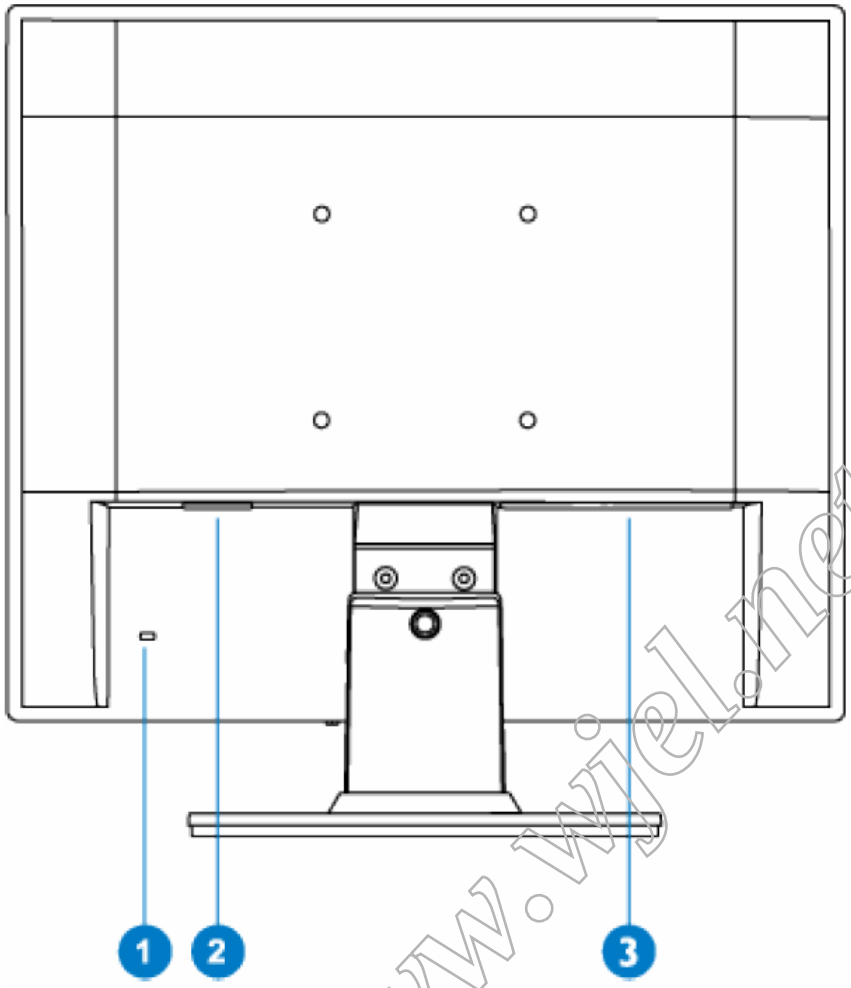
1	⏻	To switch monitor's power On and Off
2	MENU/OK	To access OSD menu
3	☼/▲	To adjust brightness of the display
4	Input / ▼	To change the signal input source.
5	AUTO/◀	Automatically adjust the horizontal position, vertical position, phase and clock settings. Return to previous OSD level.

Rear View



1 Kensington anti-thief lock

2 AC power input

3 VGA input

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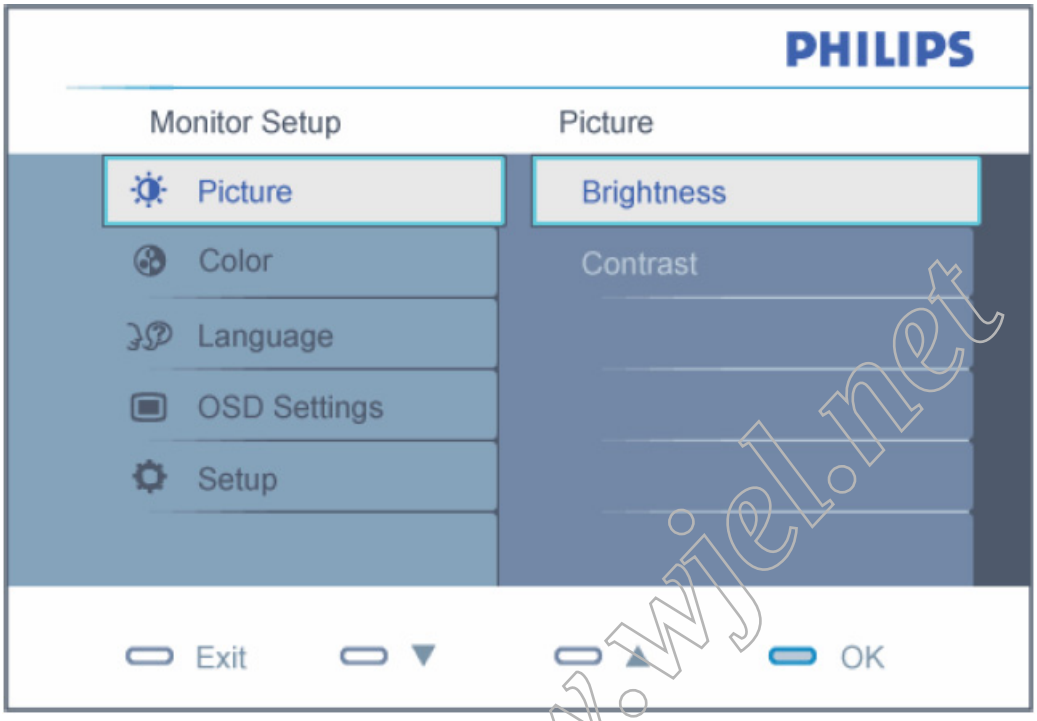
3.3 Adjusting the Picture

Description of the On Screen Display

When you press the MENU/OK button on the front control of your monitor, the On-Screen Display (OSD) Main Controls window will pop up and you can then start making adjustments to your monitor's various features. Use the ▲▼ keys to make your adjustments.



To Lock/Unlock OSD function (User Mode)

The OSD function can be locked by pressing “MENU” button for more than 10 seconds.

Locked OSD function can be released by pressing “MENU” button for more than 10 seconds again.

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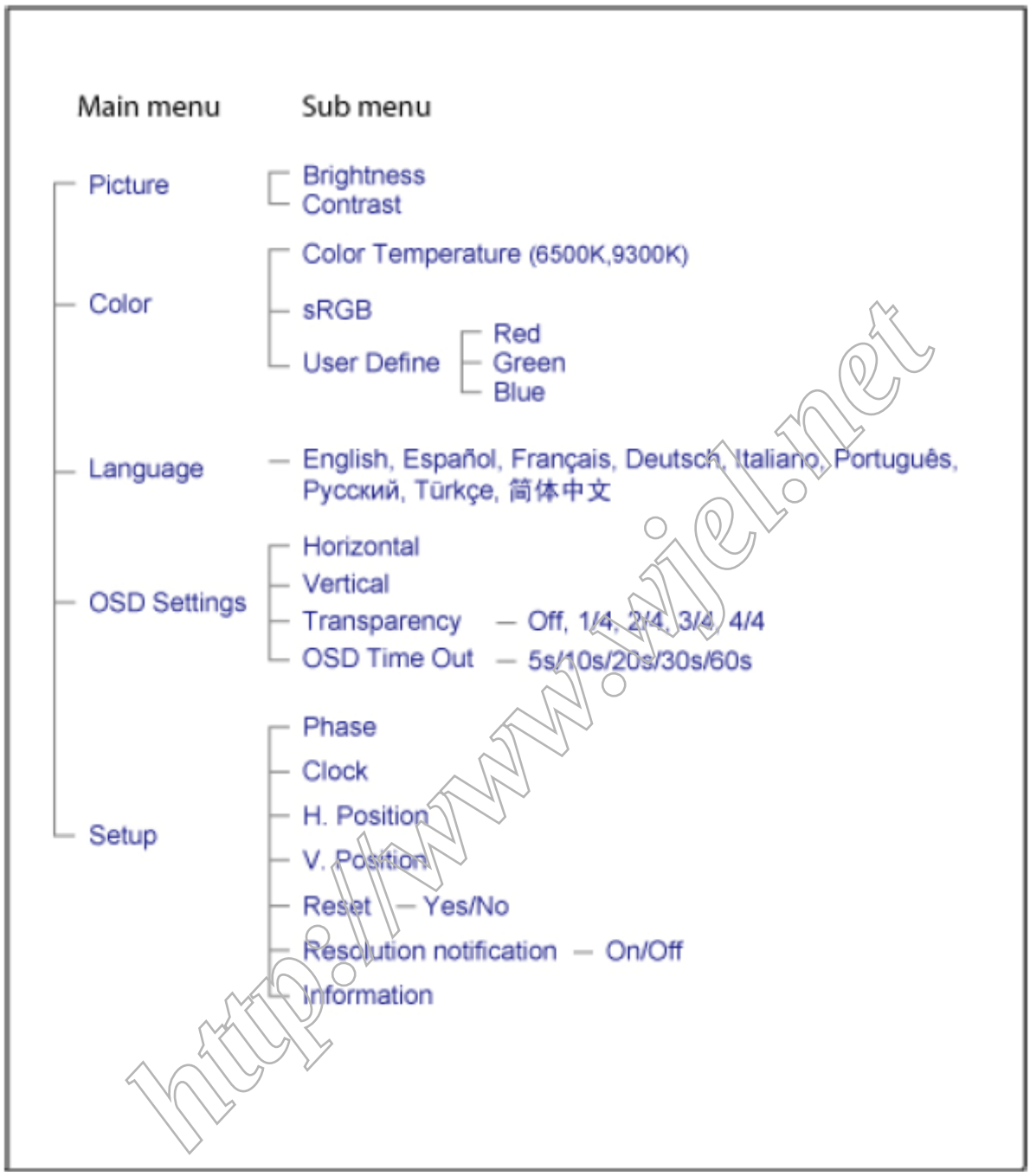
The OSD Tree

Below is an overall view of the structure of the On-Screen Display. You can use this as a reference when you want to work your way around the different adjustments later on.



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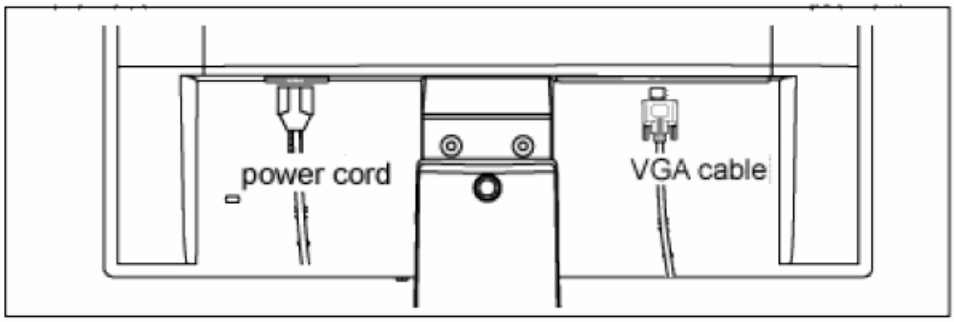
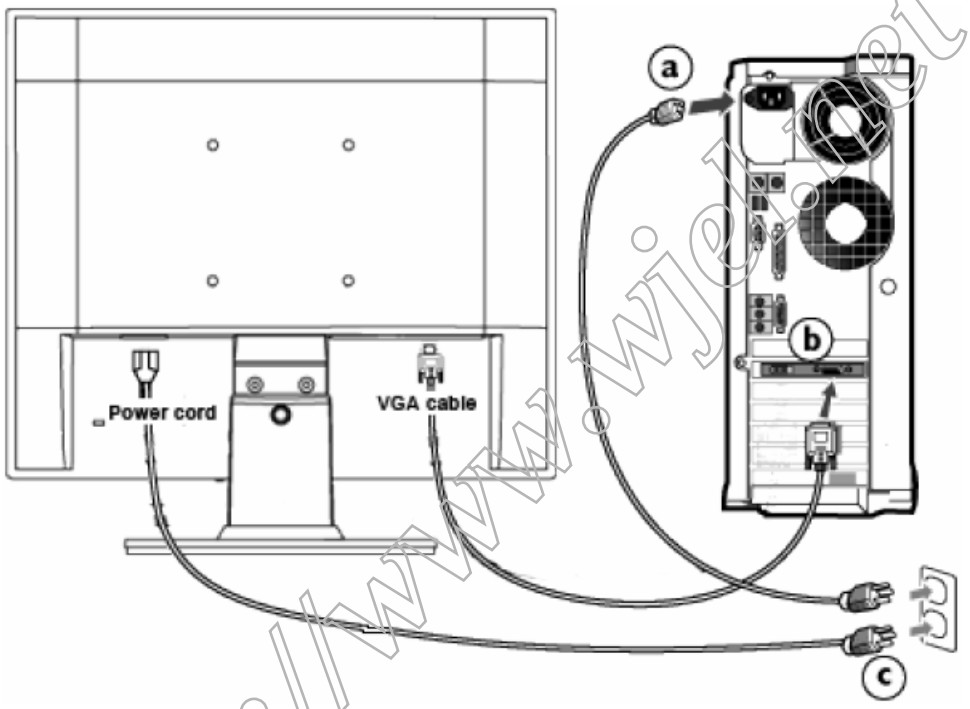
3.4 Connecting to the PC

1) Connect the power cord to the back of the monitor firmly.





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2) Connect to PC

(a) Turn off your computer and unplug its power cable.

(b) Connect the monitor signal cable to the video connector on the back of your computer.

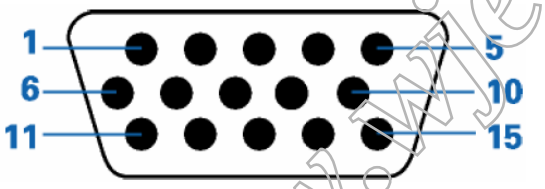
(c) Plug the power cord of your computer and your monitor into a nearby outlet.

(d) Turn on your computer and monitor. If the monitor displays an image, installation is complete.

4. Input/ Output Specification

4.1 Input Signal Connector

Analog connectors

Pin No.	Description	Pin No.	Description
1.	Red video input	9.	DDC +5V
2.	Green video input	10.	Logic Ground
3.	Blue video input	11.	Ground
4.	Sense (GND)	12.	Serial data line (SDA)
5.	Cable detect (GND)	13.	H. Sync/ H+ V. Sync
6.	Red video ground	14.	V. Sync
7.	Green video ground	15.	Data clock line (SCL)
8.	Blue video ground		
VGA connector layout			
			

4.2 Factory Preset Display Modes

H. freq (kHz)	Resolution	V. freq (Hz)
31.47	720*400	70.09
31.47	640*480	59.94
37.50	640*480	75.00
37.88	800*600	60.32
46.88	800*600	75.00
48.36	1024*768	60.00
60.02	1024*768	75.03
63.89	1280*1024	60.02
79.98	1280*1024	75.03

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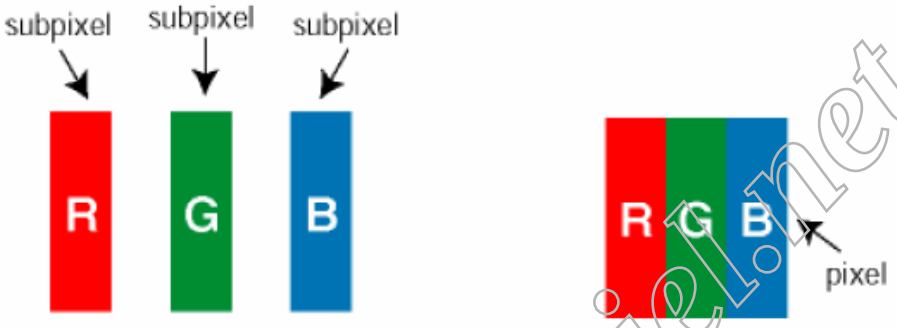
4.3 Pixel Defect Policy

Philips' Flat Panel Monitors Pixel Defect Policy

Philips strives to deliver the highest quality products. We use some of the industry's most advanced manufacturing processes and practice stringent quality control. However, pixel or sub pixel defects on the TFT LCD panels used in flat panel monitors are sometimes unavoidable. No manufacturer can guarantee that all panels will be free from pixel defects, but Philips guarantees that any monitor with an unacceptable number of defects will be repaired or replaced under warranty. This notice explains the different types of pixel defects and defines acceptable defect levels for each type. In order to qualify for repair or replacement under warranty, the number of pixel defects on a TFT LCD panel must exceed these acceptable levels. For example, no more than 0.0004% of the sub pixels on a 19 " XGA monitor may be defective. Furthermore, Philips sets even higher quality standards for certain types or combinations of pixel defects that are more noticeable than others. This policy is valid worldwide.



Pixels and Sub pixels

A pixel, or picture element, is composed of three sub pixels in the primary colors of red, green and blue. Many pixels together form an image. When all sub pixels of a pixel are lit, the three colored sub pixels together appear as a single white pixel. When all are dark, the three colored sub pixels together appear as a single black pixel. Other combinations of lit and dark sub pixels appear as single pixels of other colors.

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Types of Pixel Defects

Pixel and sub pixel defects appear on the screen in different ways. There are two categories of pixel defects and several types of sub pixel defects within each category.

Bright Dot Defects Bright dot defects appear as pixels or sub pixels that are always lit or 'on'. That is, a *bright dot* is a sub-pixel that stands out on the screen when the monitor displays a dark pattern. There are three types of bright dot defects:

One lit red, green or blue sub pixel

Two adjacent lit sub pixels:
- Red + Blue = Purple
- Red + Green = Yellow
- Green + Blue = Cyan (Light Blue)

Three adjacent lit sub pixels (one white pixel)

A red or blue *bright dot* must be more than 50 percent brighter than neighboring dots while a green bright dot is 30 percent brighter than neighboring dots.

Black Dot Defects Black dot defects appear as pixels or sub pixels that are always dark or 'off'. That is, a *dark dot* is a sub-pixel that stands out on the screen when the monitor displays a light pattern. There are two types of black dot defects:

One dark sub pixel

Two or three adjacent dark sub pixels

Proximity of Pixel Defects

Because pixel and sub pixels defects of the same type that are near to one another may be more noticeable, Philips also specifies tolerances for the proximity of pixel defects.

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Pixel Defect Tolerances

In order to qualify for repair or replacement due to pixel defects during the warranty period, a TFT LCD panel in a Philips flat panel monitor must have pixel or sub pixel defects exceeding the tolerances listed in the following tables.

BRIGHT DOT DEFECTS	ACCEPTABLE LEVEL
MODEL	**190V9**
1 lit subpixel	3
2 adjacent lit subpixels	1
3 adjacent lit subpixels (one white pixel)	0
Distance between two bright dot defects*	>15mm
Total bright dot defects of all types	3

BLACK DOT DEFECTS	ACCEPTABLE LEVEL
MODEL	**190V9**
1 dark subpixel	5
2 adjacent dark subpixels	2
3 adjacent dark subpixels	0
Distance between two black dot defects*	>15mm
Total black dot defects of all types	5

TOTAL DOT DEFECTS	ACCEPTABLE LEVEL
MODEL	**190V9**
Total bright or black dot defects of all types	5

Note:

** 1 or 2 adjacent sub pixel defects = 1 dot defect*

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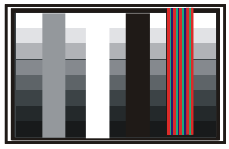
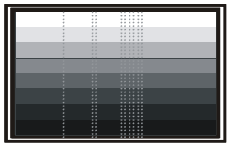
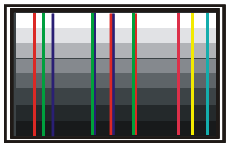
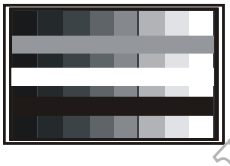
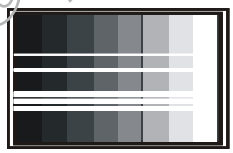
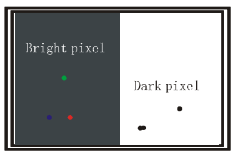
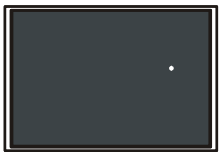
4.4 Failure Mode Of Panel

Quick reference for failure mode of LCD panel

this page presents problems that could be made by LCD panel.
It is not necessary to repair circuit board. Simply follow the mechanical instruction on this manual to eliminate failure by replace LCD panel.

Failure description	Phenomenon
Vertical block defect	
Vertical dim lines	
Vertical lines defect (Always bright or dark)	
Horizontal block defect	
Horizontal dim lines	
Horizontal lines defect (Always bright or dark)	
Has bright or dark pixel	
Polarizer has bubbles	
Polarizer has bubbles	
Foreign material inside polarizer. It shows liner or dot shape.	
Concentric circle formed	
Bottom back light of LCD is brighter than normal	
Back light un-uniformity	
Backlight has foreign material. Black or white color, liner or circular type	

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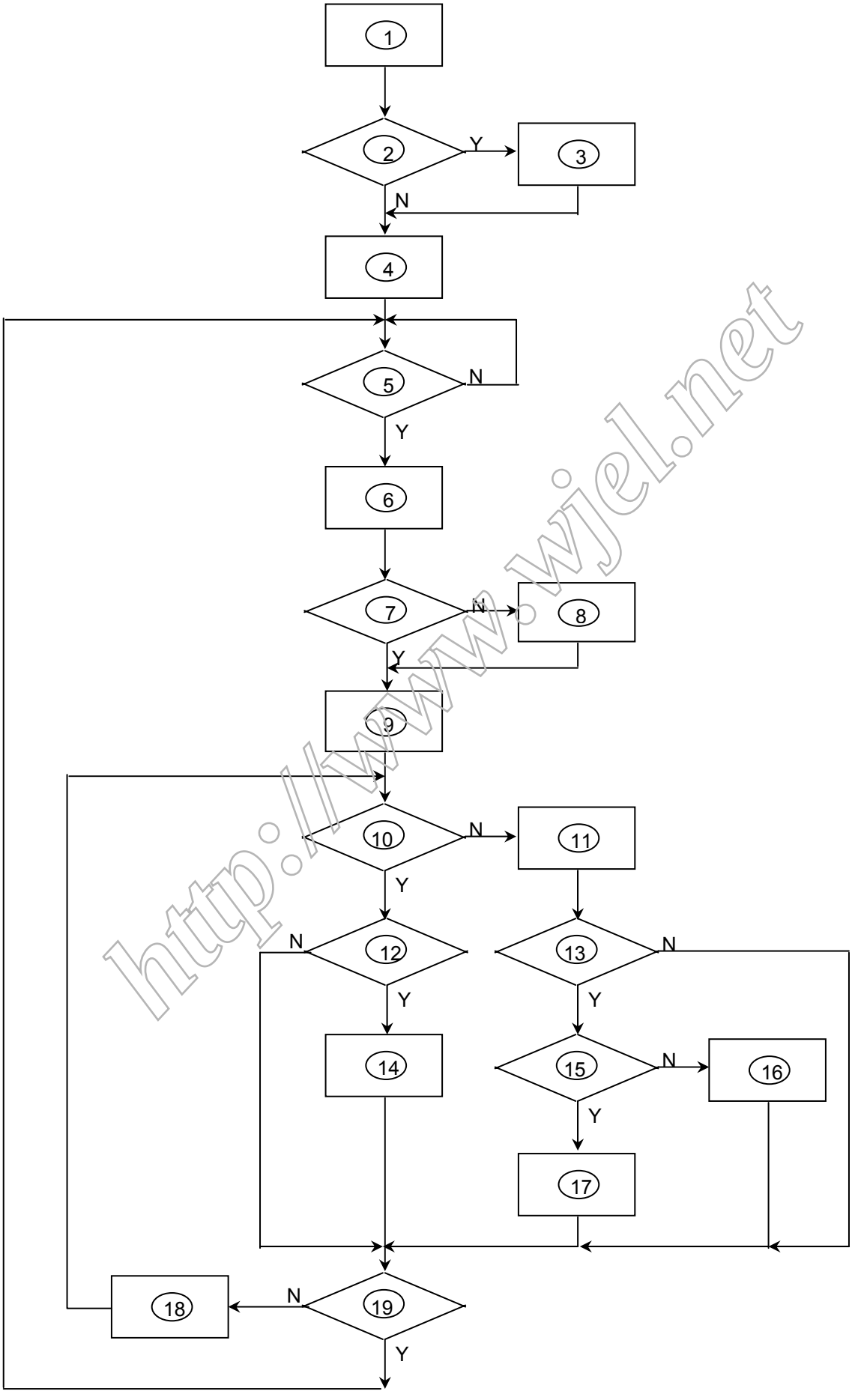
5. Block Diagram

5.1 Software Flow Chat



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1) MCU initialize.
2) Is the EPROM blank?
3) Program the EPROM by default values.
4) Get the PWM value of brightness from EPROM.
5) Is the power key pressed?
6) Clear all global flags.
7) Are the AUTO and SELECT keys pressed?
8) Enter factory mode.
9) Save the power key status into EPROM. Turn on the LED and set it to green color. Scalar initializes.
10) In standby mode?
11) Update the lifetime of back light.
12) Check the analog port, are there any signals coming?
13) Does the scalar send out an interrupt request?
14) Wake up the scalar.
15) Are there any signals coming from analog port?
16) Display "No connection Check Signal Cable" message. And go into standby mode after the message disappear.
17) Program the scalar to be able to show the coming mode.
18) Process the OSD display.
19) Read the keyboard. Is the power key pressed?

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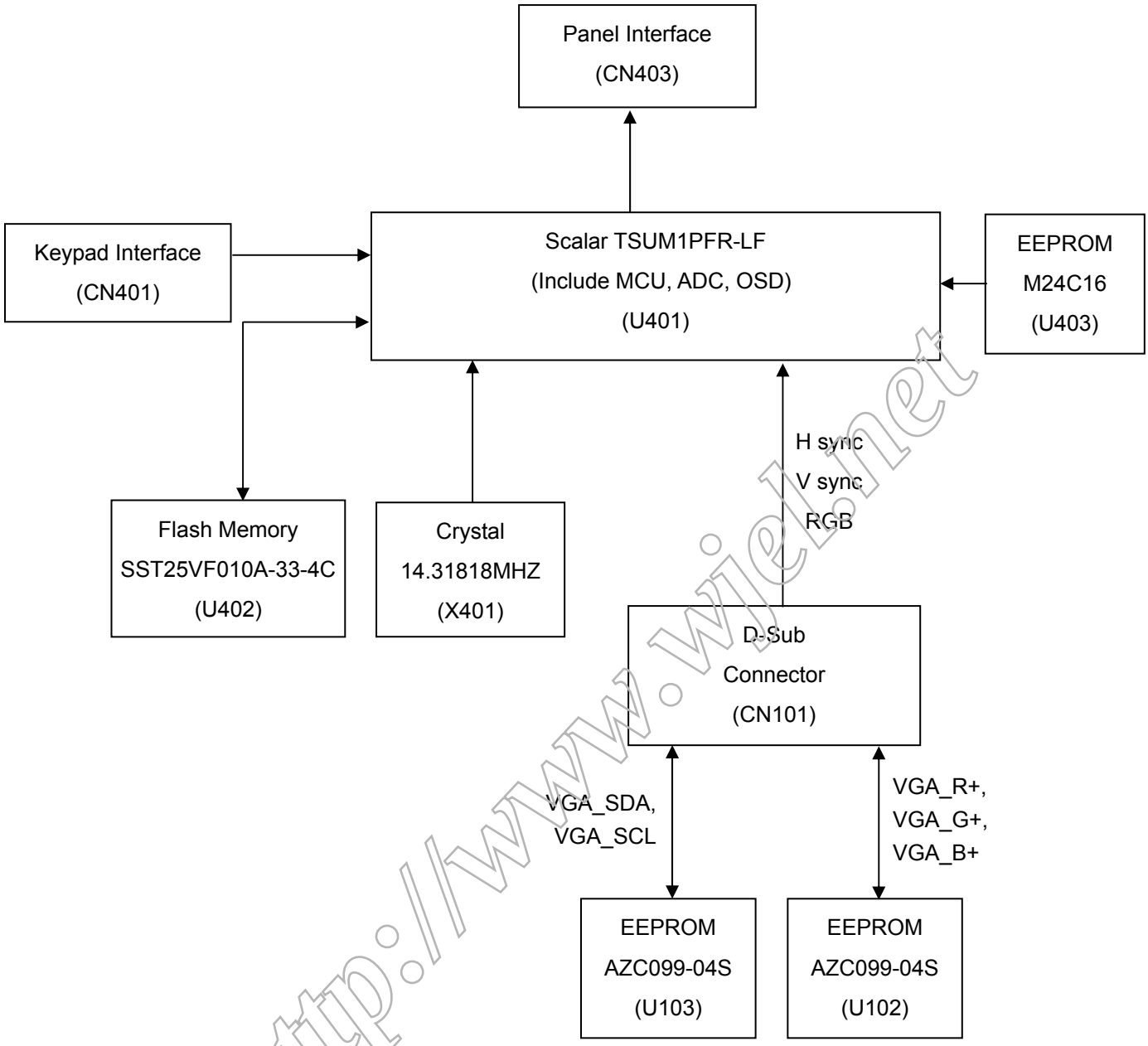
5.2 Electrical Block Diagram

5.2.1 Main Board



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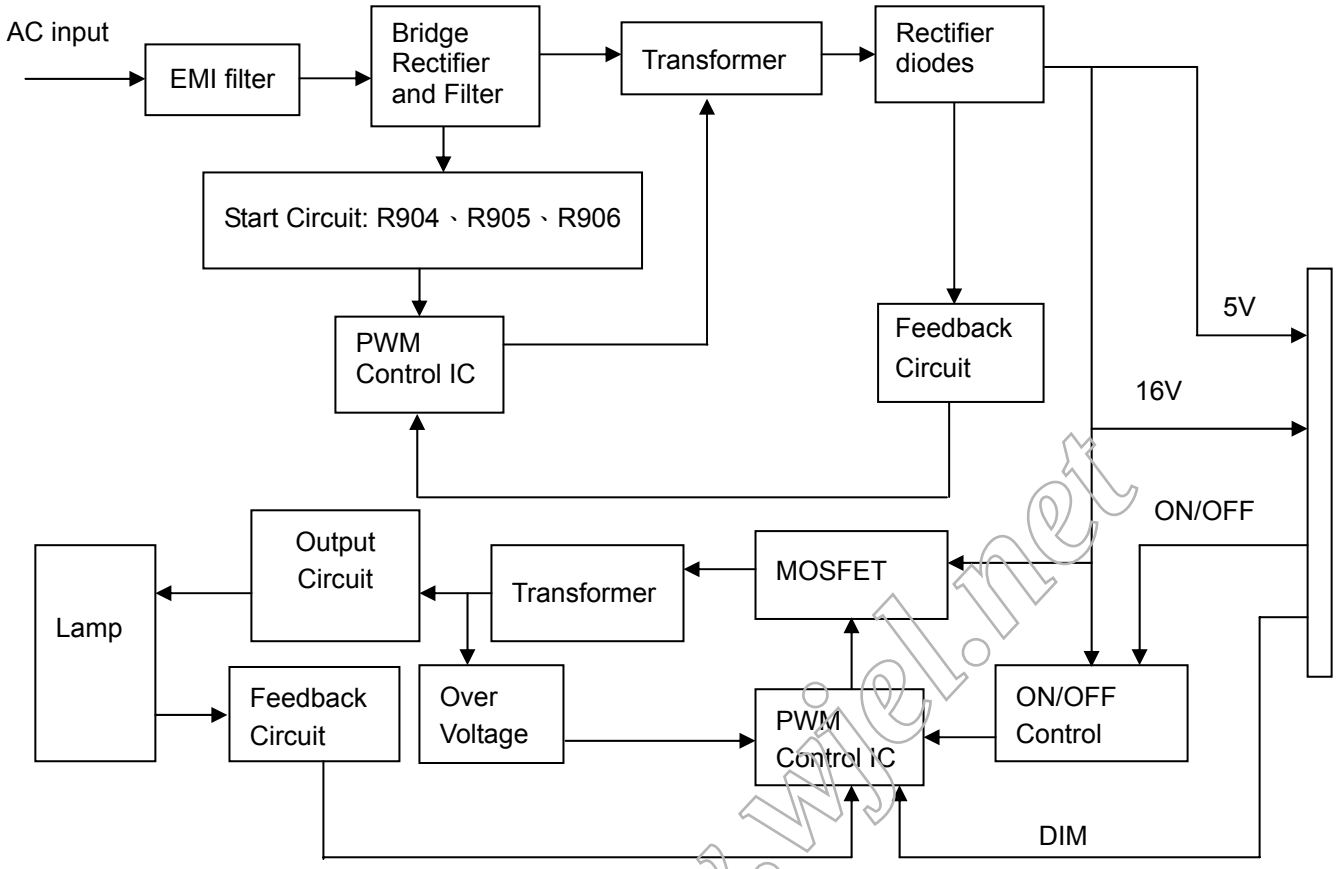
5.2.2 Inverter/Power Board



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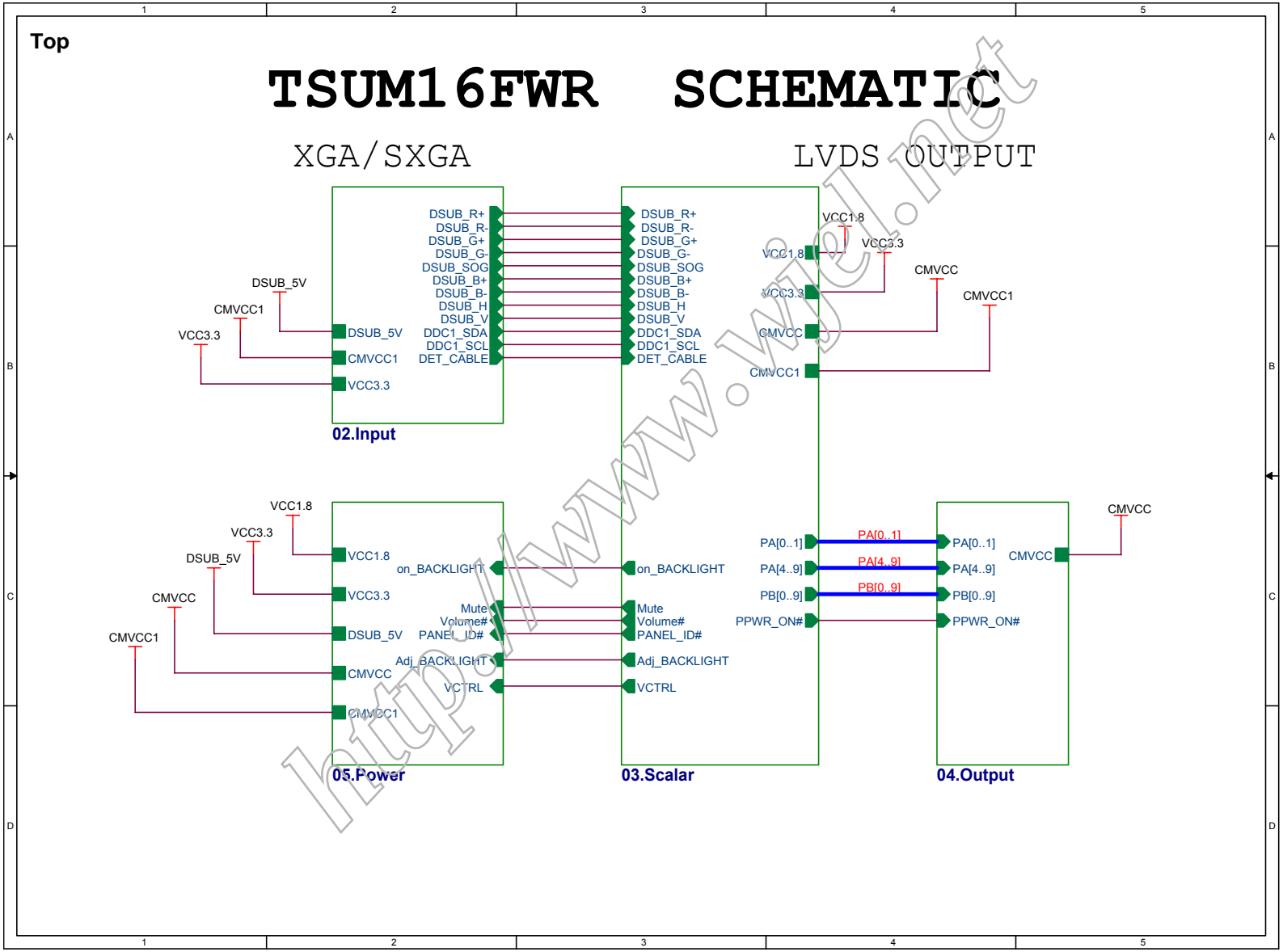
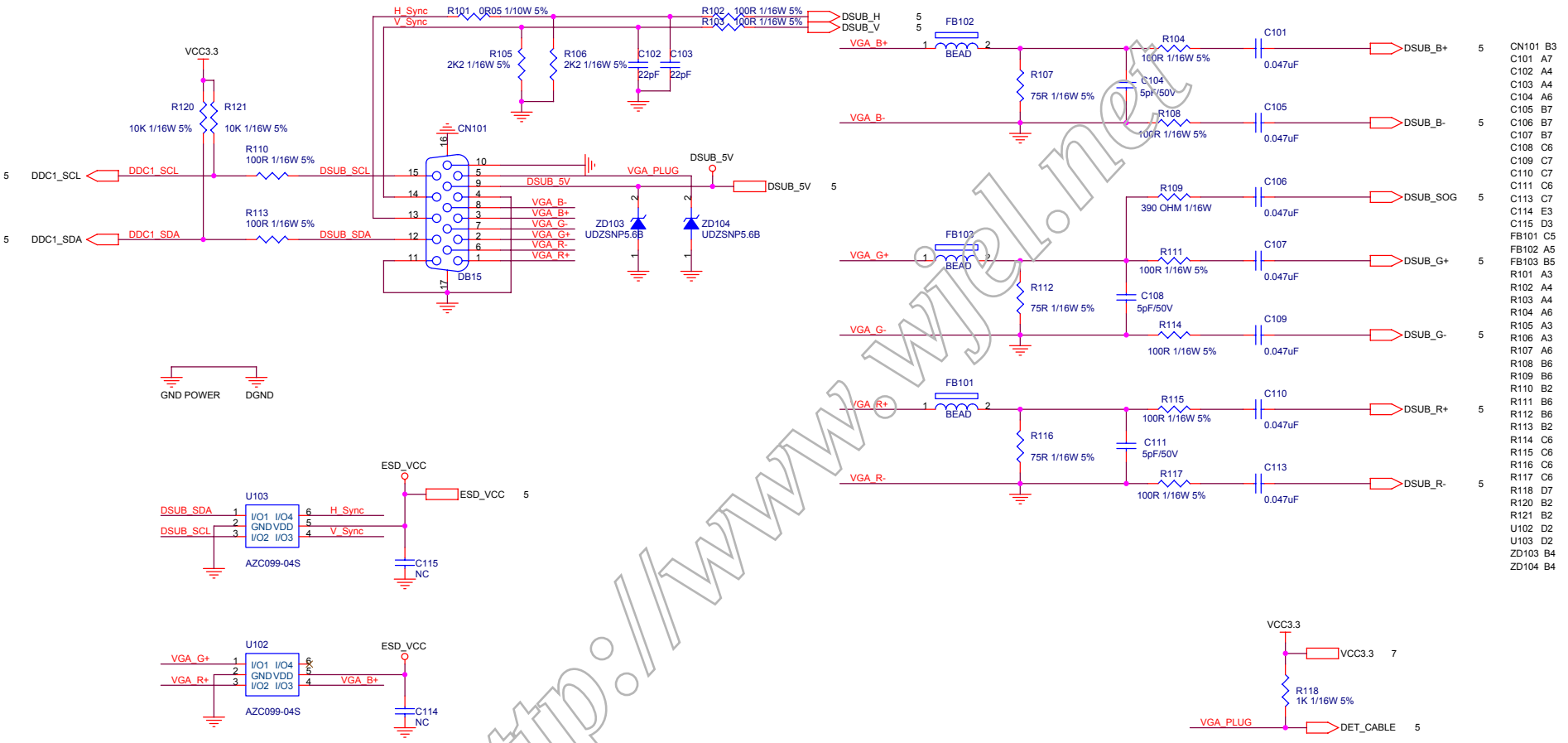
6. Schematic

6.1 Main Board

715G2904-1



Input



CN101 B3
C101 A7
C102 A4
C103 A4
C104 A6
C105 B7
C106 B7
C107 B7
C108 C6
C109 C7
C110 C7
C111 C6
C113 C7
C114 E3
C115 D3
FB101 C5
FB102 A5
FB103 B5
R101 A3
R102 A4
R103 A4
R104 A6
R105 A3
R106 A3
R107 A6
R108 B6
R109 B6
R110 B2
R111 B6
R112 B6
R113 B2
R114 C6
R115 C6
R116 C6
R117 C6
R118 D7
R120 B2
R121 B2
U102 D2
U103 D2
ZD103 B4
ZD104 B4

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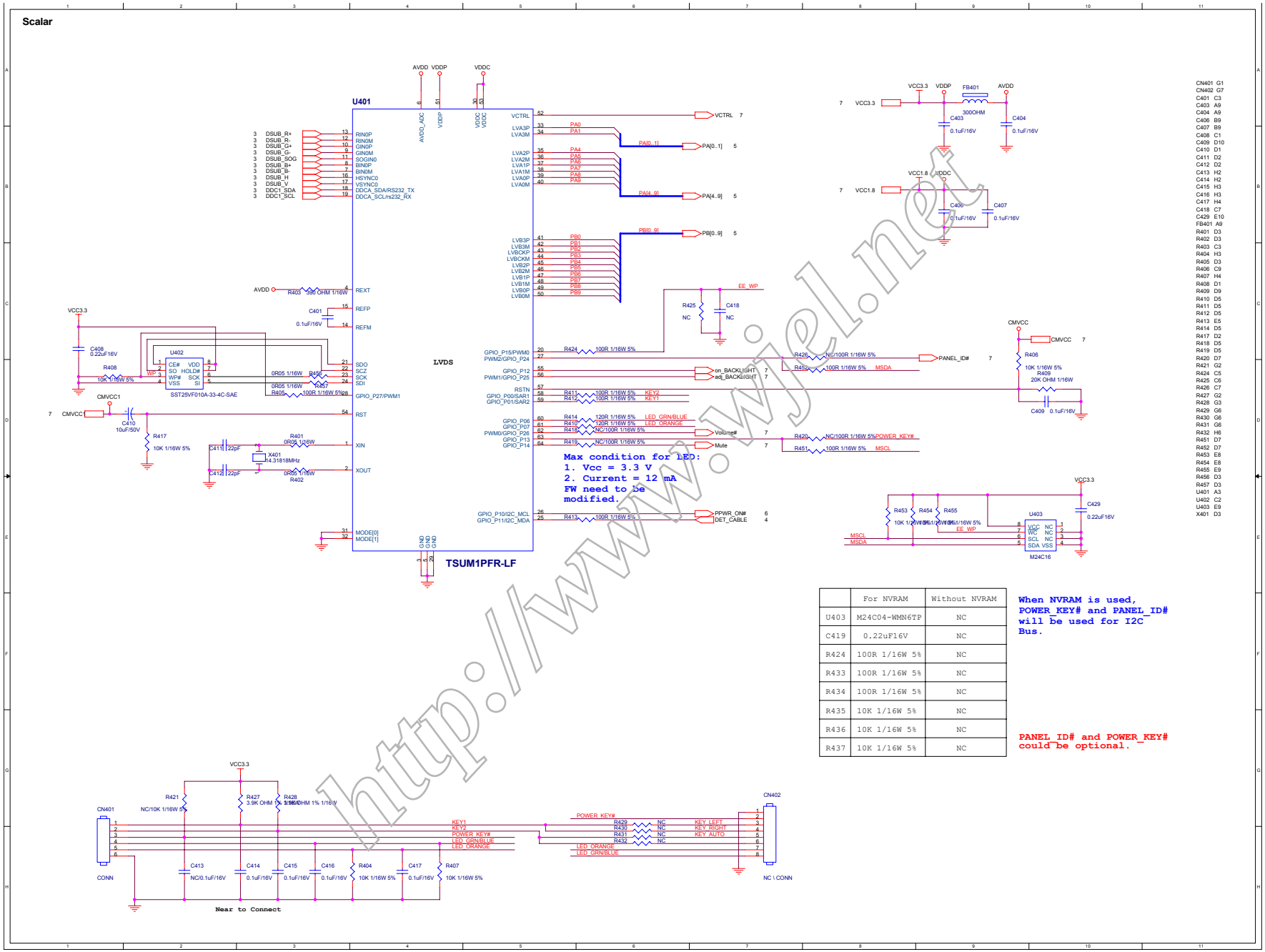

	For NVRAM	Without NVRAM
U403	M24C04-WMN6TP	NC
C419	0.22uF16V	NC
R424	100R 1/16W 5%	NC
R433	100R 1/16W 5%	NC
R434	100R 1/16W 5%	NC
R435	10K 1/16W 5%	NC
R436	10K 1/16W 5%	NC
R437	10K 1/16W 5%	NC

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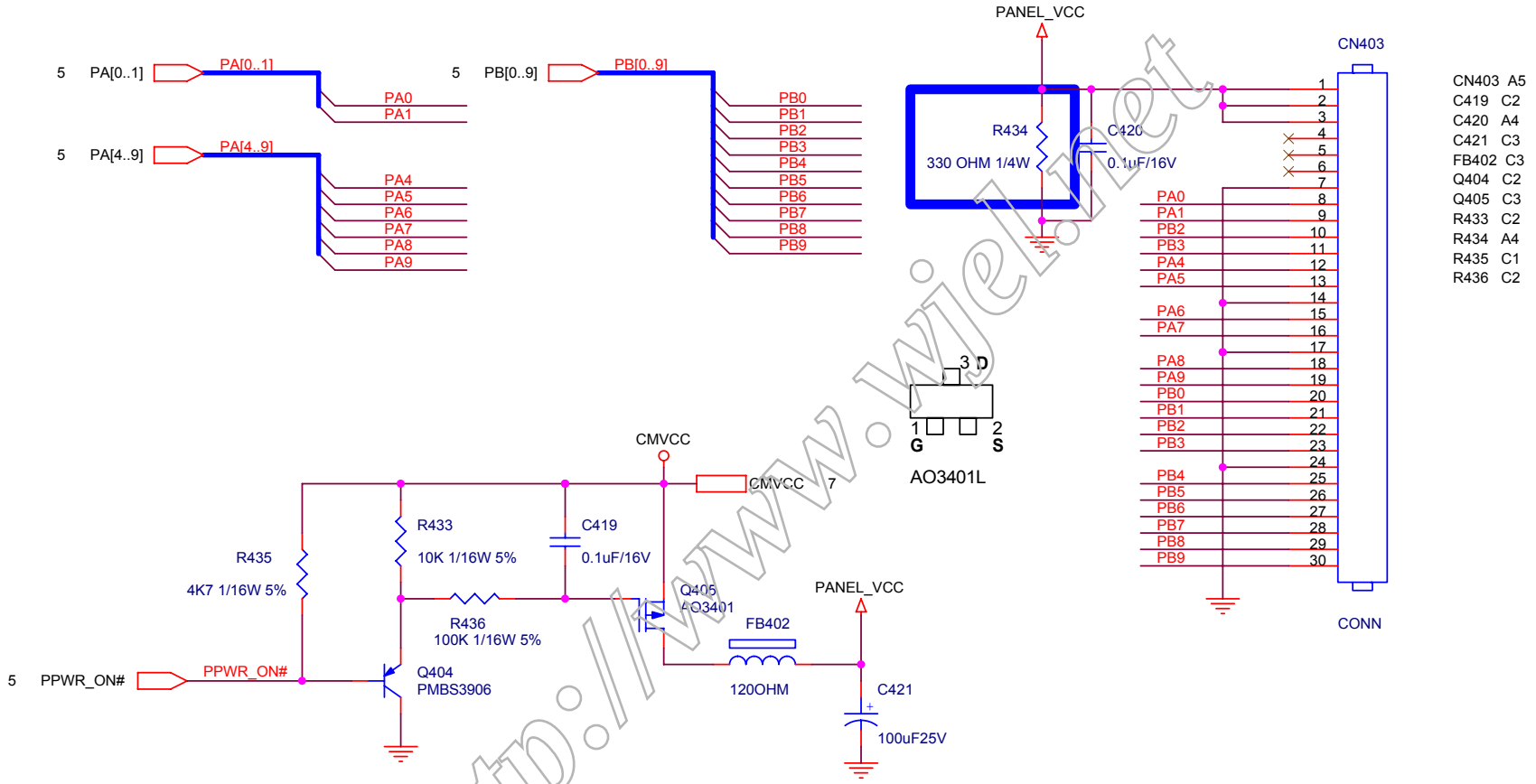
Output



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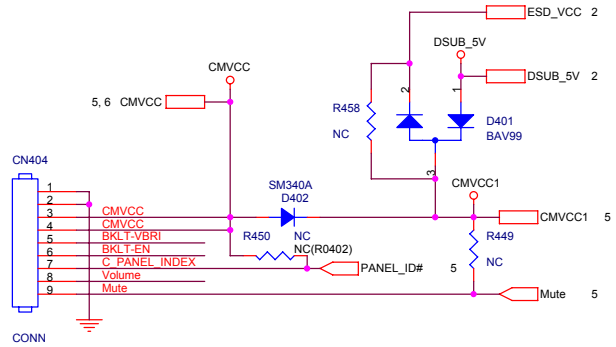
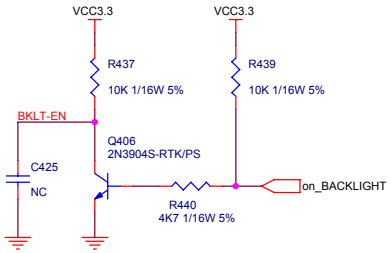
Power

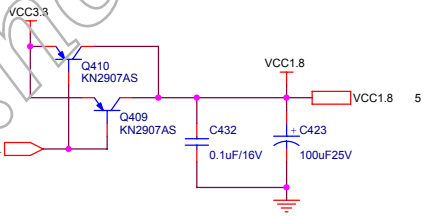
Due to LG doen't request PC'99 Function.

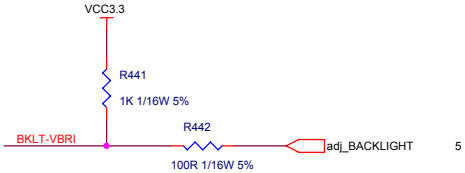
	D401	R458
LG	NC	0Ohm 1/16W
OTHER	BAV99	NC

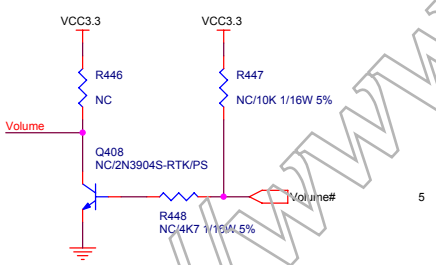
CN404 B1
C422 D6
C423 B7
C425 B3
C426 D5
C427 D7
C428 D5
C432 B7
D401 A2
D402 B2
FB403 C6
Q406 B4
Q408 D3
Q409 B6
Q410 B6
R437 B4
R439 B4
R440 B4
R441 C1
R442 D1
R446 C3
R447 C4
R448 D4
R449 B3
R450 B2
R458 A2
U404 C6

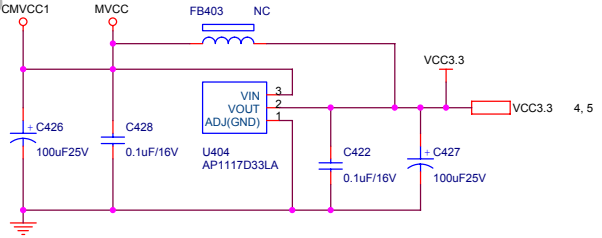










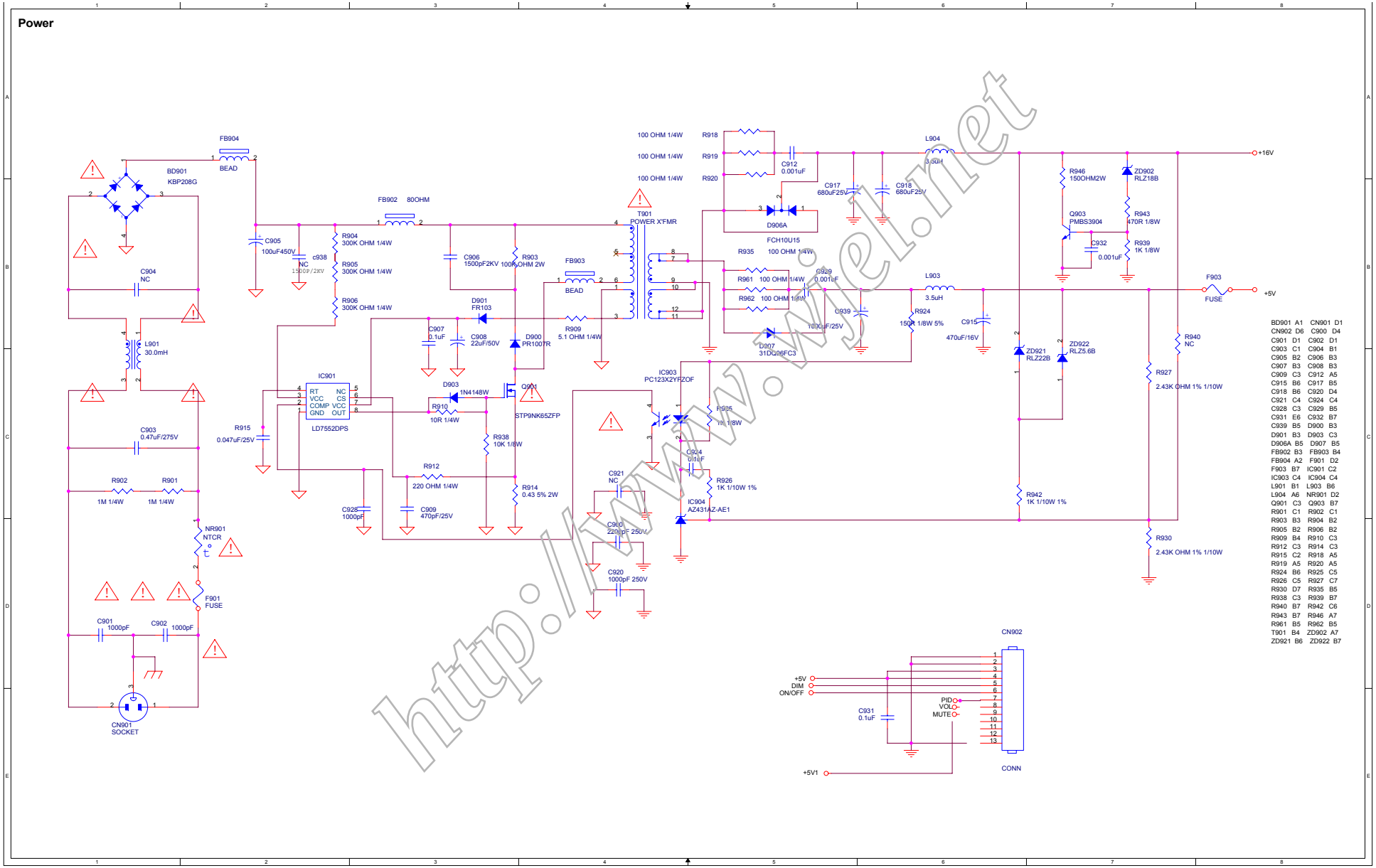


U404 can use package 232 or 252.

http://www.wjel.net

6.2 Power Board

715G2824-1



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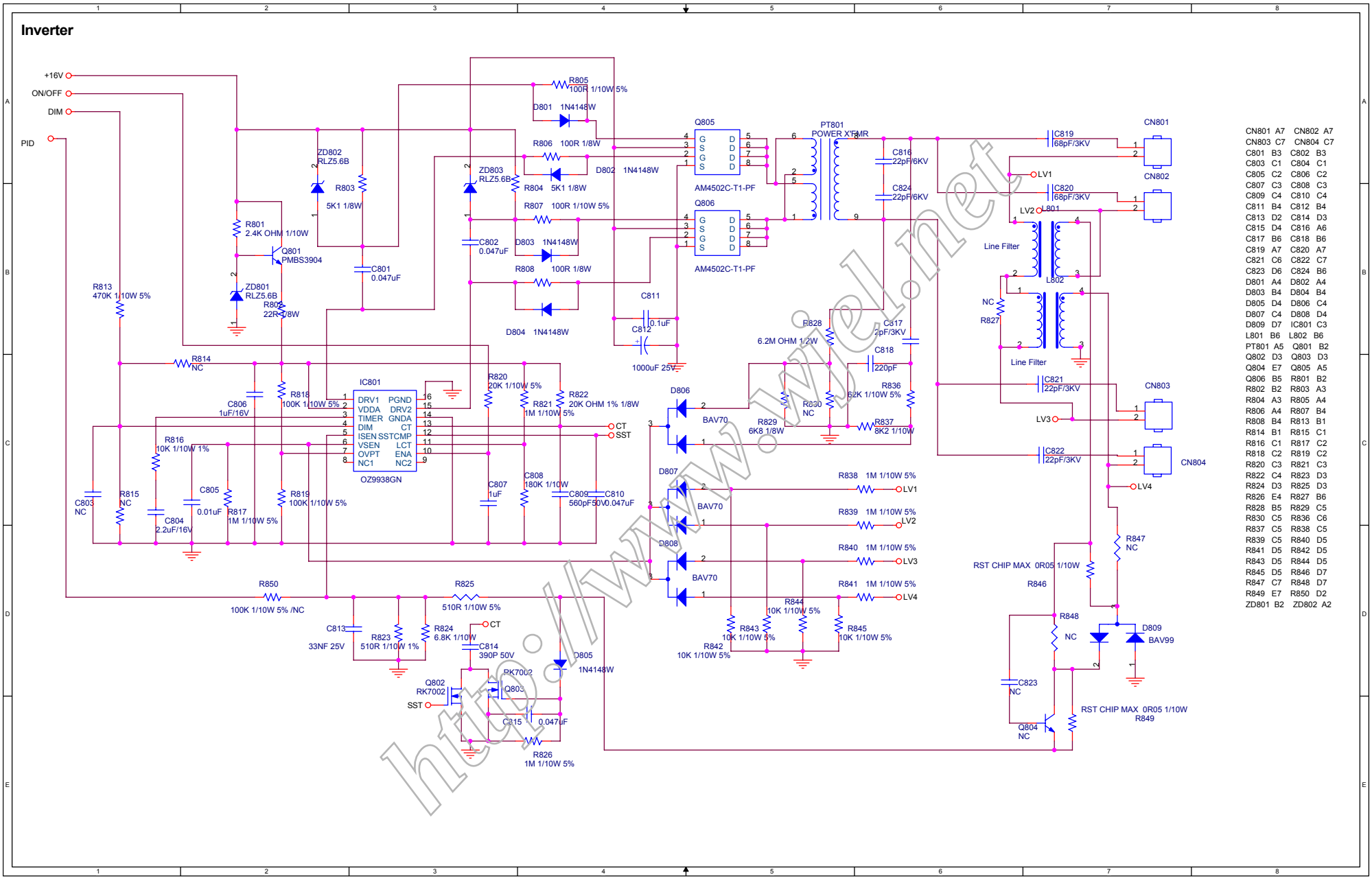
Inverter



CN801	A7	CN802	A7
CN803	C7	CN804	C7
C801	B3	C802	B3
C803	C1	C804	C1
C805	C2	C806	C2
C807	C3	C808	C3
C809	C4	C810	C4
C811	B4	C812	B4
C813	D2	C814	D3
C815	D4	C816	A6
C817	B6	C818	B6
C819	A7	C820	A7
C821	C6	C822	C7
C823	D6	C824	B6
D801	A4	D802	A4
D803	B4	D804	B4
D805	D4	D806	C4
D807	C4	D808	D4
D809	D7	IC801	C3
L801	B6	L802	B6
PT801	A5	Q801	B2
Q802	D3	Q803	D3
Q804	E7	Q805	A5
Q806	B5	R801	B2
R802	B2	R803	A3
R804	A3	R805	A4
R806	A4	R807	B4
R808	B4	R813	B1
R814	B1	R815	C1
R816	C1	R817	C2
R818	C2	R819	C2
R820	C3	R821	C3
R822	C4	R823	D3
R824	D3	R825	D3
R826	E4	R827	B6
R828	B5	R829	C5
R830	C5	R836	C6
R837	C5	R838	C5
R839	C5	R840	D5
R841	D5	R842	D5
R843	D5	R844	D5
R845	D5	R846	D7
R847	C7	R848	D7
R849	E7	R850	D2
ZD801	B2	ZD802	A2

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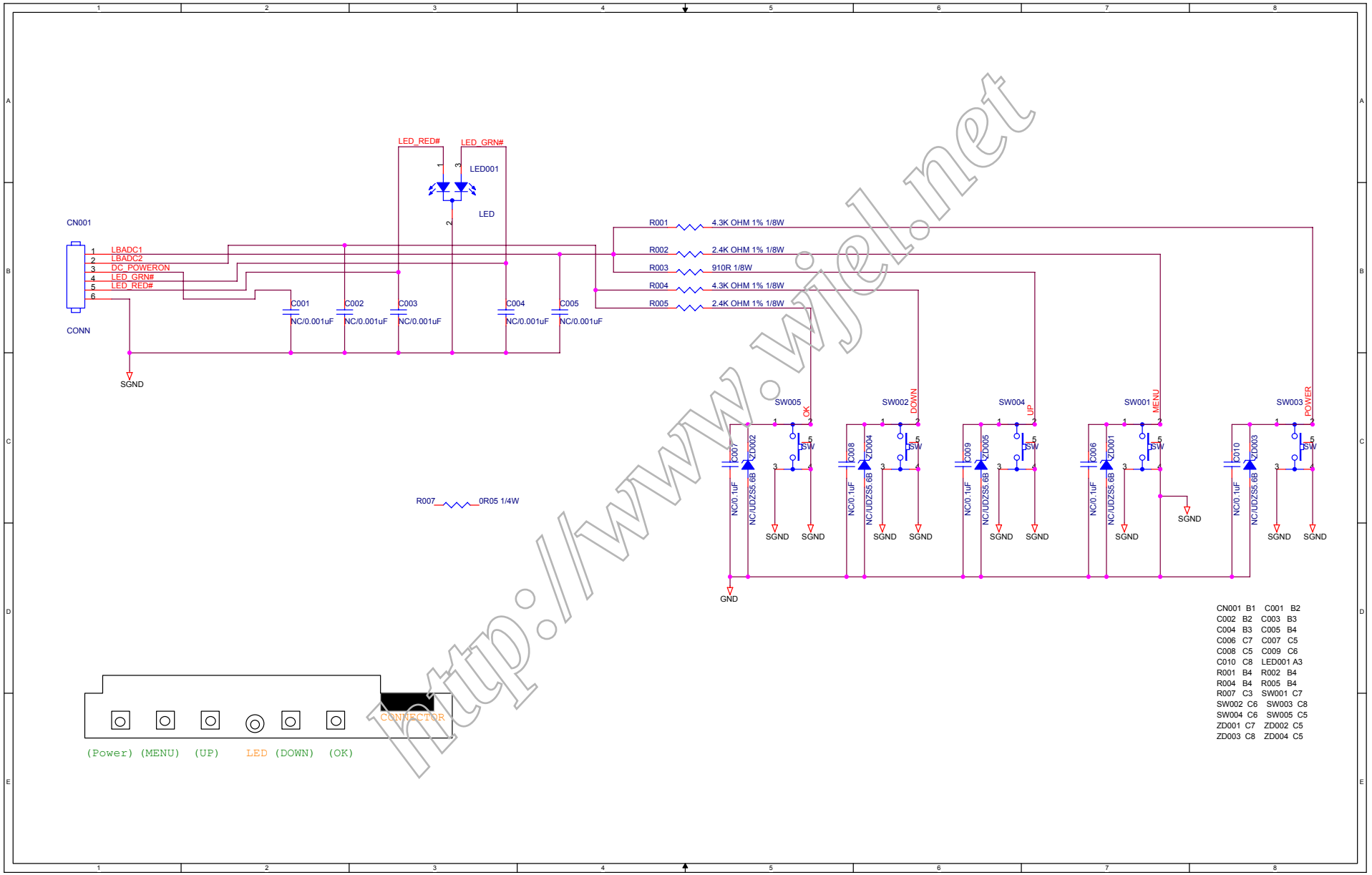
6.3 Key Board

715G3016-1



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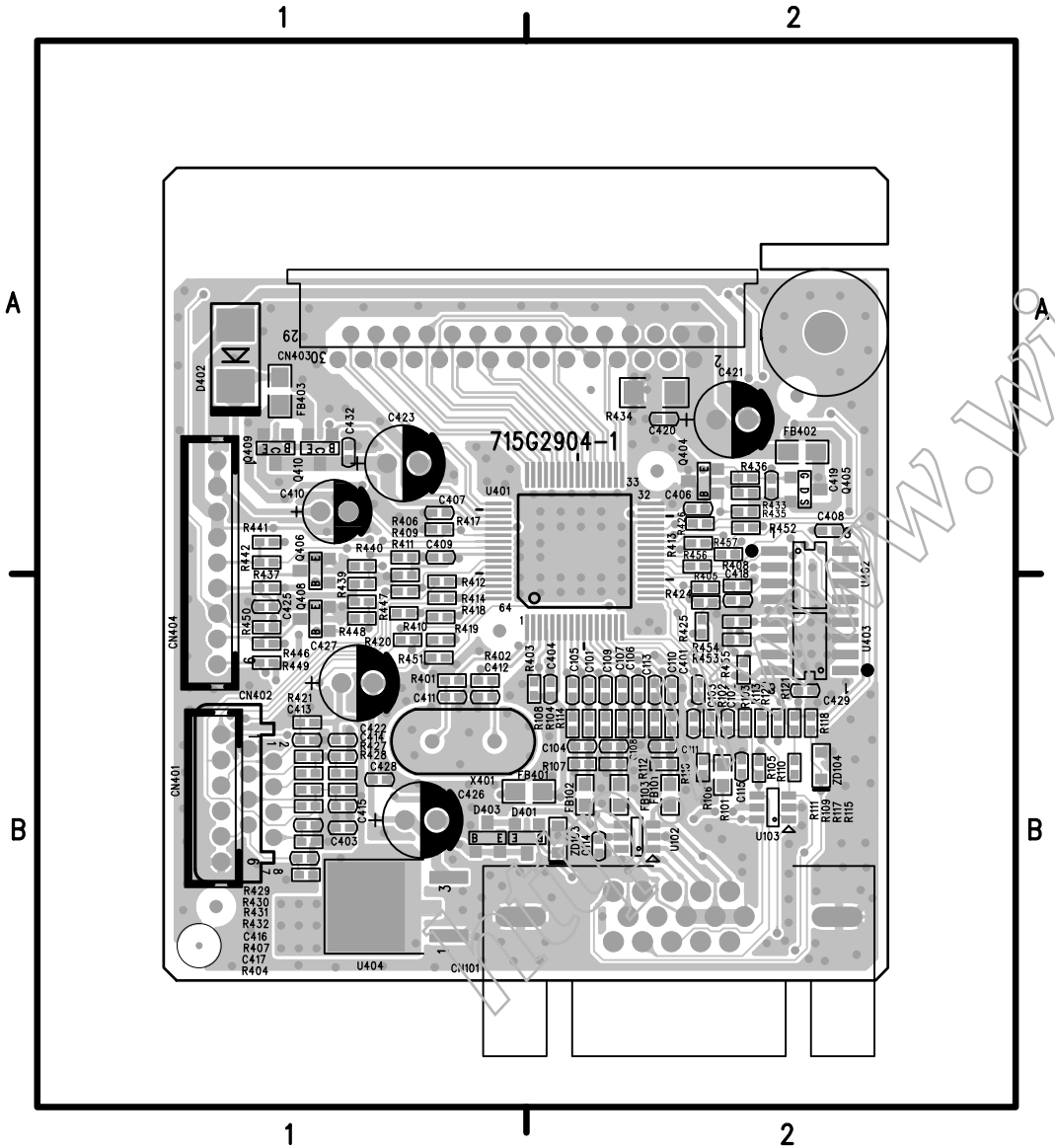
7. PCB Layout

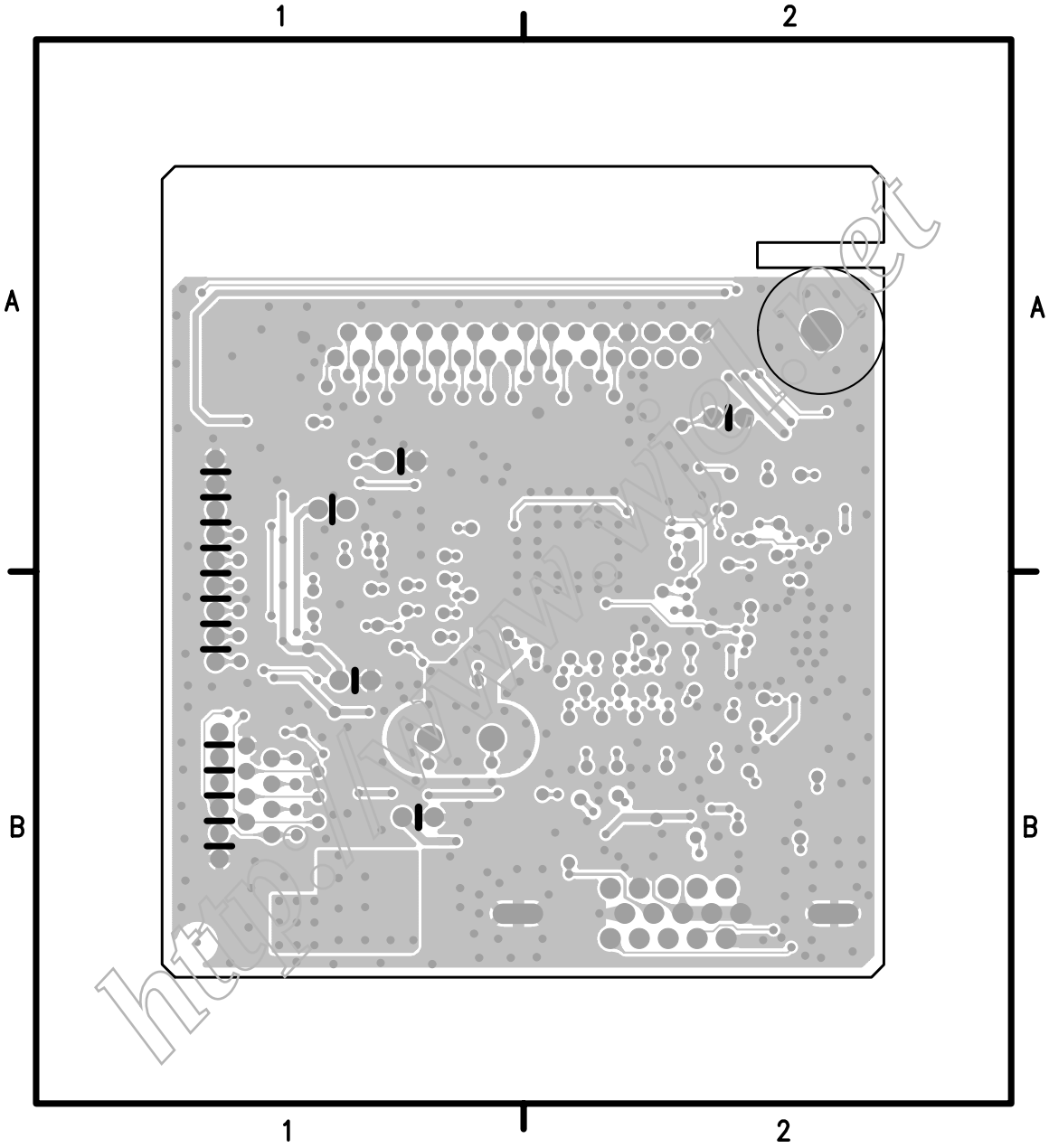
7.1 Main Board

715G2904-1



C101	B2	FB101	B2	R418	B1	C428	B1
C102	B2	FB102	B2	R419	B1	R405	B2
C103	B2	FB103	B2	R420	B1	SEN4	B1
C104	B2	FB401	B2	R421	B1	C429	B2
C105	B2	FB402	A2	R424	B2	R406	A1
C106	B2	FB403	A1	R425	B2	U102	B2
C107	B2	FDT2	?1	R426	A2	C432	A1
C108	B2	FDT3	?6	R427	B1	R407	B1
C109	B2	Q404	A2	R428	B1	U103	B2
C110	B2	Q405	A2	R429	B1	CN101	B2
C111	B2	Q406	B1	R430	B1	R408	B2
C113	B2	Q408	B1	R431	B1	U401	A2
C114	B2	Q409	A1	R432	B1	CN401	B1
C115	B2	Q410	A1	R433	A2	R409	B1
C401	B2	R101	B2	R434	A2	U402	A2
C403	B1	R102	B2	R435	A2	CN402	B1
C404	B2	R103	B2	R436	A2	R410	B1
C406	A2	R104	B2	R437	B1	U403	B2
C407	A1	R105	B2	R439	B1	CN403	A1
C408	A2	R106	B2	R440	A1	R411	B1
C409	A1	R107	B2	R441	A1	U404	B1
C410	A1	R108	B2	R442	A1	CN404	A1
C411	B1	R109	B2	R446	B1	R412	B1
C412	B1	R110	B2	R447	B1	X401	B1
C413	B1	R111	B2	R448	B1	D401	B2
C414	B1	R112	B2	R449	B1	R413	A2
C415	B1	R113	B2	R450	B1	ZD103	B2
C416	B1	R114	B2	R451	B1	D402	A1
C417	B1	R115	B2	R452	A2	R414	B1
C418	B2	R116	B2	R453	B2	ZD104	B2
C419	A2	R117	B2	R454	B2	D403	B1
C420	A2	R118	B2	R455	B2	R417	A1
C427	B1	R404	B1	SEN3	A2		

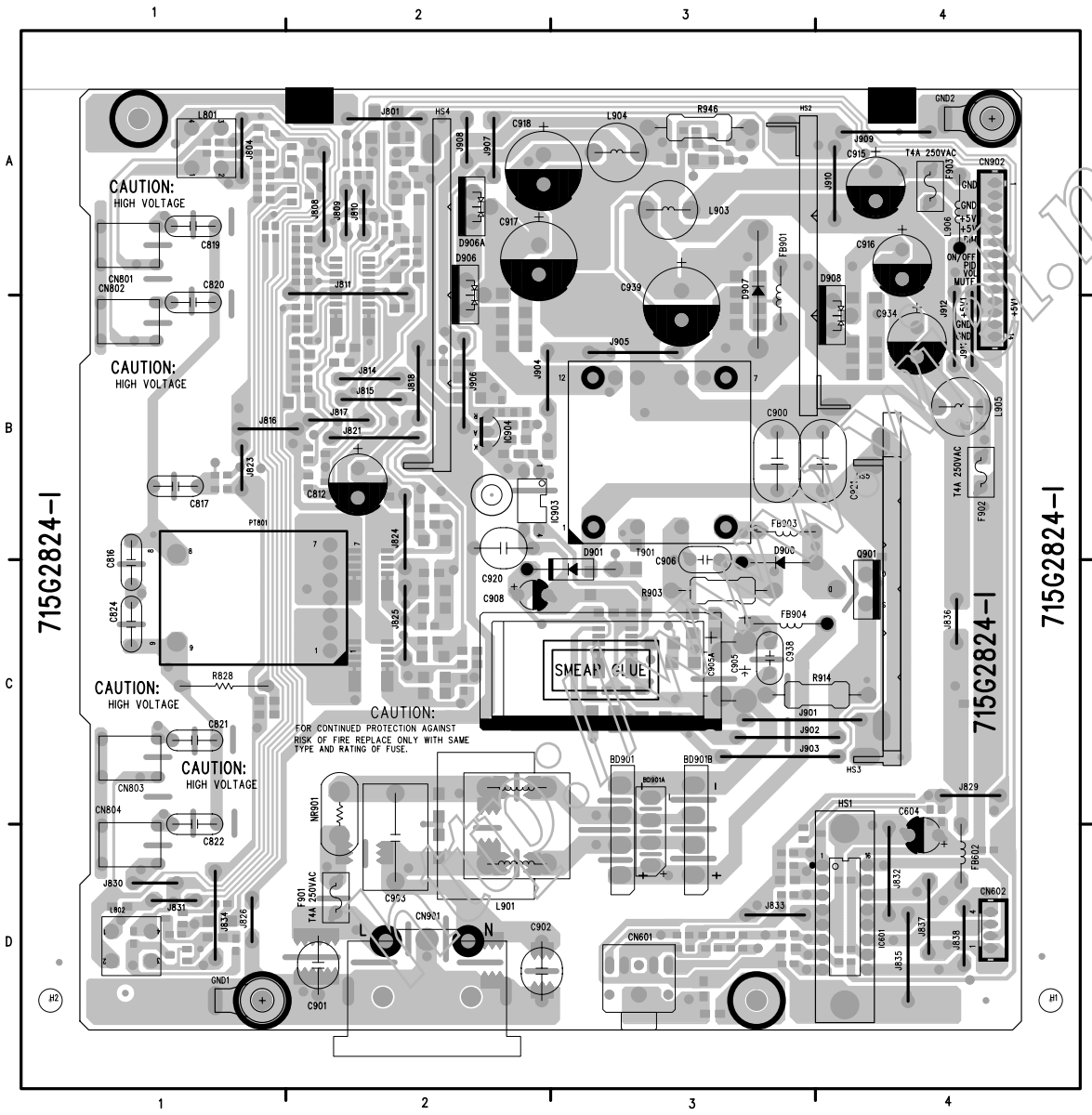
http://www.welmec



http://www.vinafix.net

7.2 Power Board

715G2824-1



BD901	D3	J821	B2
BD901A	D3	J823	B1
BD901B	D3	J824	B2
C604	D4	J825	C2
C812	B2	J826	D1
C816	C1	J829	C4
C817	B1	J830	D1
C819	A1	J831	D1
C820	B1	J832	D4
C821	C1	J833	D3
C822	C1	J834	D1
C824	C1	J835	D4
C900	B3	J836	C4
C901	D2	J837	D4
C902	D2	J838	D4
C903	D2	J901	C4
C905	C3	J902	C3
C905A	C3	J903	C3
C906	B3	J904	B2
C908	C2	J905	B3
C915	A4	J906	B2
C916	A4	J907	A2
C917	A2	J908	A2
C918	A2	J909	A4
C920	B2	J910	A4
C921	B4	J911	B4
C934	B4	J912	B4
C938	C3	L801	A1
C939	B3	L802	D1
CN601	D3	L901	D2
CN602	D4	L903	A3
CN801	A1	L904	A3
CN802	B1	L905	B4

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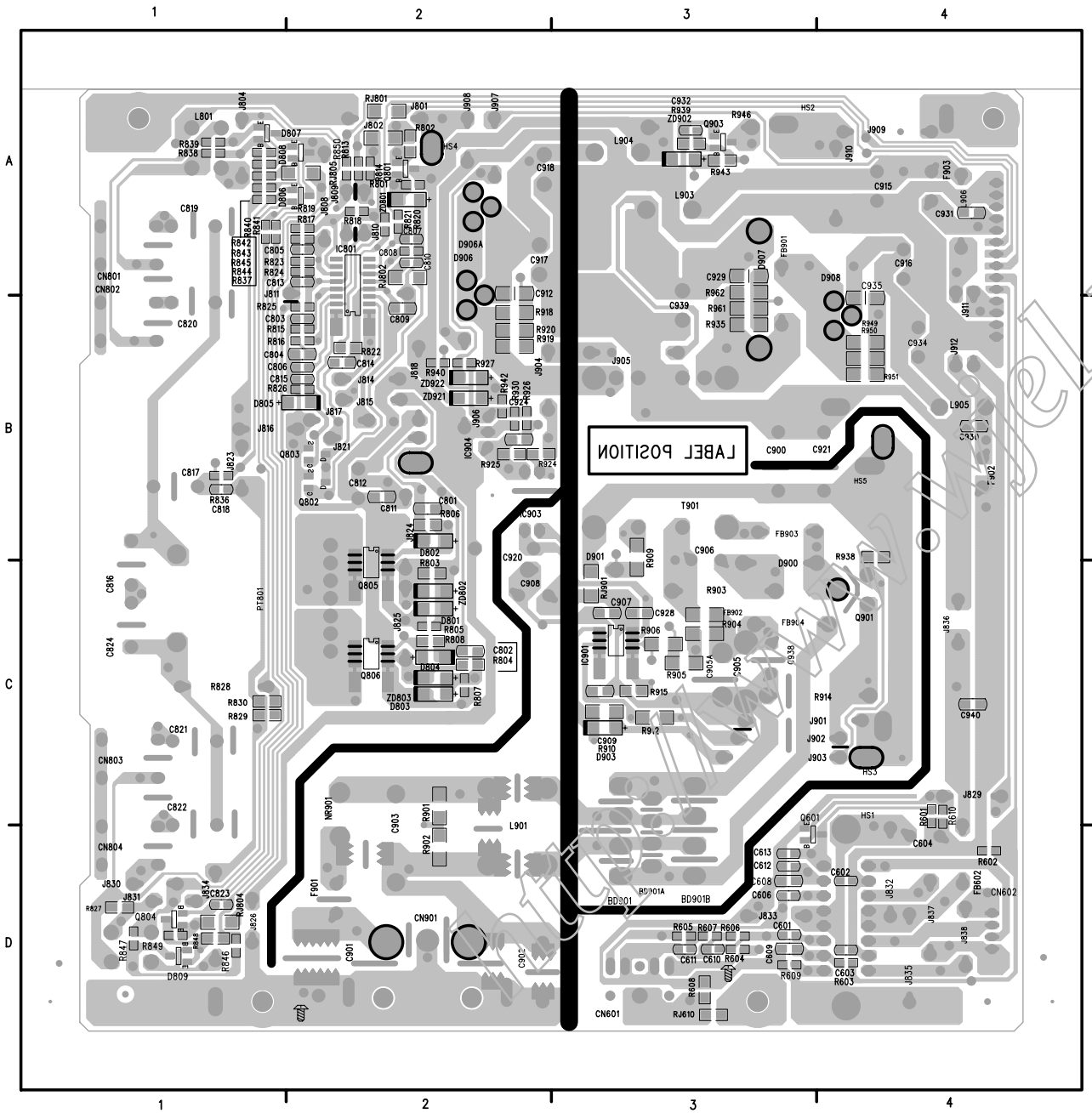

C601	D3	R818	A2	D805	B2	R926	B2
C602	D4	R819	A2	D806	A2	R927	B2
C603	D4	R820	A2	D807	A1	R930	B2
C606	D3	R821	A2	D808	A2	R935	B3
C608	D3	R822	B2	D809	D1	R938	B4
C609	D3	R823	A2	D903	C3	R939	A3
C610	D3	R824	A2	FB902	C3	R940	B2
C611	D3	R825	B2	IC801	B2	R942	B2
C612	D3	R826	B2	IC901	C3	R943	A3
C613	D3	R827	D1	J802	A2	R949	B4
C801	B2	R829	C1	Q601	D3	R950	B4
C802	C2	R830	C1	Q801	A2	R951	B4
C803	B2	R836	B1	Q802	B2	R961	B3
C804	B2	R837	A1	Q803	B2	R962	A3
C805	A2	R838	A1	Q804	D1	RJ610	D3
C806	B2	R839	A1	Q805	B2	RJ801	A2
C807	A2	R840	A1	Q806	C2	RJ802	A2
C808	A2	R841	A1	Q903	A3	RJ804	D1
C809	B2	R842	A1	R601	C4	RJ805	A2
C810	A2	R843	A1	R602	D4	RJ901	C3
C811	B2	R844	A1	R603	D4	SG12	=4
C813	A2	R845	A1	R604	D3	SG13	D2
C814	B2	R846	D1	R605	D3	SG14	D2
C815	B2	R847	D1	R606	D3	SG15	D2
C818	B1	R848	D1	R607	D3	SG16	D2
C823	D1	R849	D1	R608	D3	SG18	D1
C907	C3	R850	A2	R609	D3	SG19	D2
C909	C3	R901	C2	R610	C4	SG20	D2
C912	A2	R902	D2	R801	A2	SG21	D2
C924	B2	R904	C3	R802	A2	SG22	D2
C928	C3	R905	C3	R803	C2	SG23	D2
C929	A3	R906	C3	R804	C2	SG24	D2
C930	B4	R909	B3	R805	C2	SG25	D2
C931	A4	R910	C3	R806	B2	SG26	C2
C932	A3	R912	C3	R807	C2	SG27	C2
C935	B4	R915	C3	R808	C2	ZD801	A2
C940	C4	R918	B2	R813	A2	ZD802	C2
D801	C2	R919	B2	R814	A2	ZD803	C2
D802	B2	R920	B2	R815	B2	ZD902	A3
D803	C2	R924	B2	R816	B2	ZD921	B2
D804	C2	R925	B2	R817	A2	ZD922	B2

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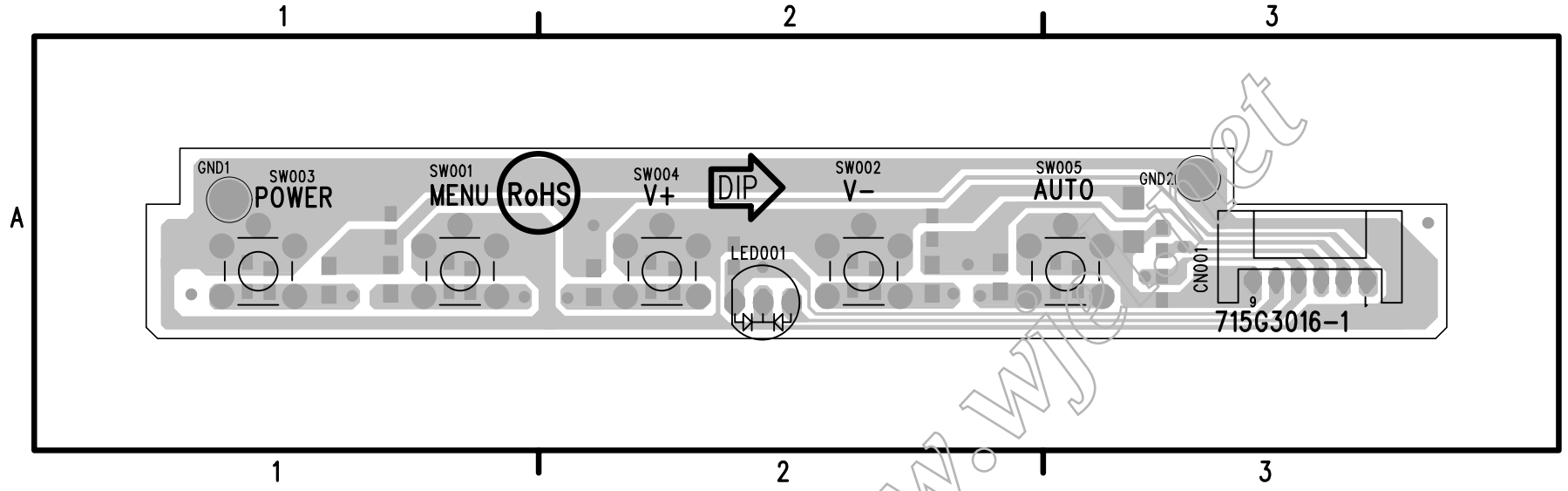
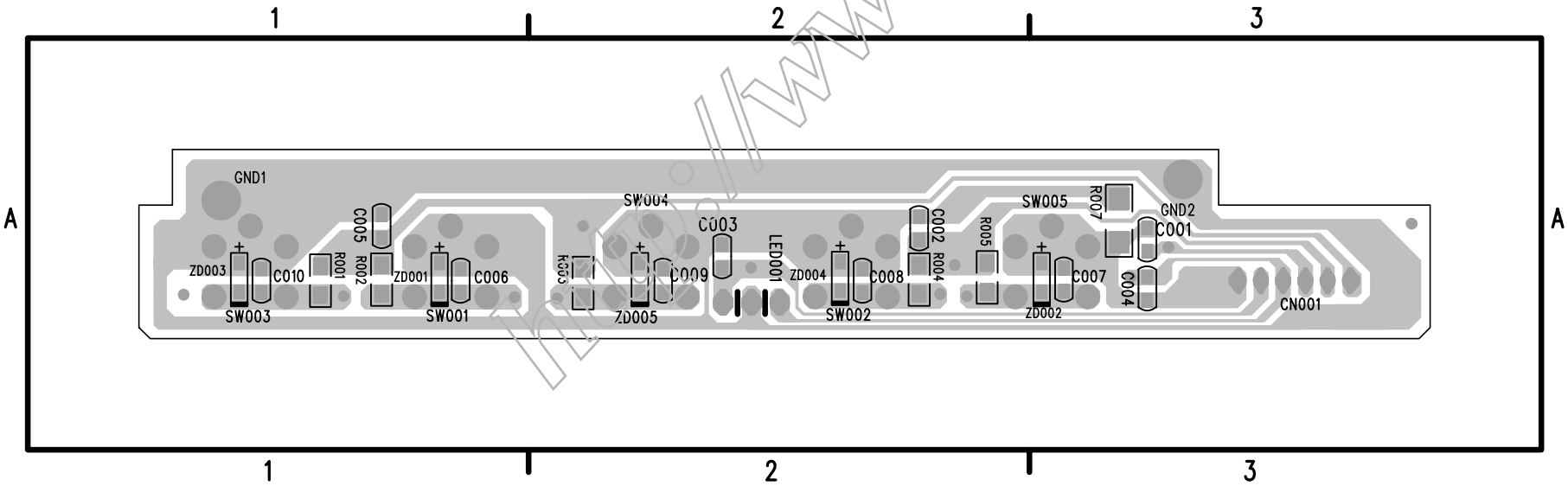
7.3 Key Board

715G3016-1



CN001 A3
GND1 A1
GND2 A3
LED001 A2
SW001 A1
SW002 A2
SW003 A1
SW004 A2
SW005 A3



C001 A3
C002 A2
C003 A2
C004 A3
C005 A1
C006 A1
C007 A3
C008 A2
C009 A2
C010 A1
R001 A1
R002 A1
R003 A2
R004 A2
R005 A2
R007 A3
ZD001 A1
ZD002 A3
ZD003 A1
ZD004 A2
ZD005 A2

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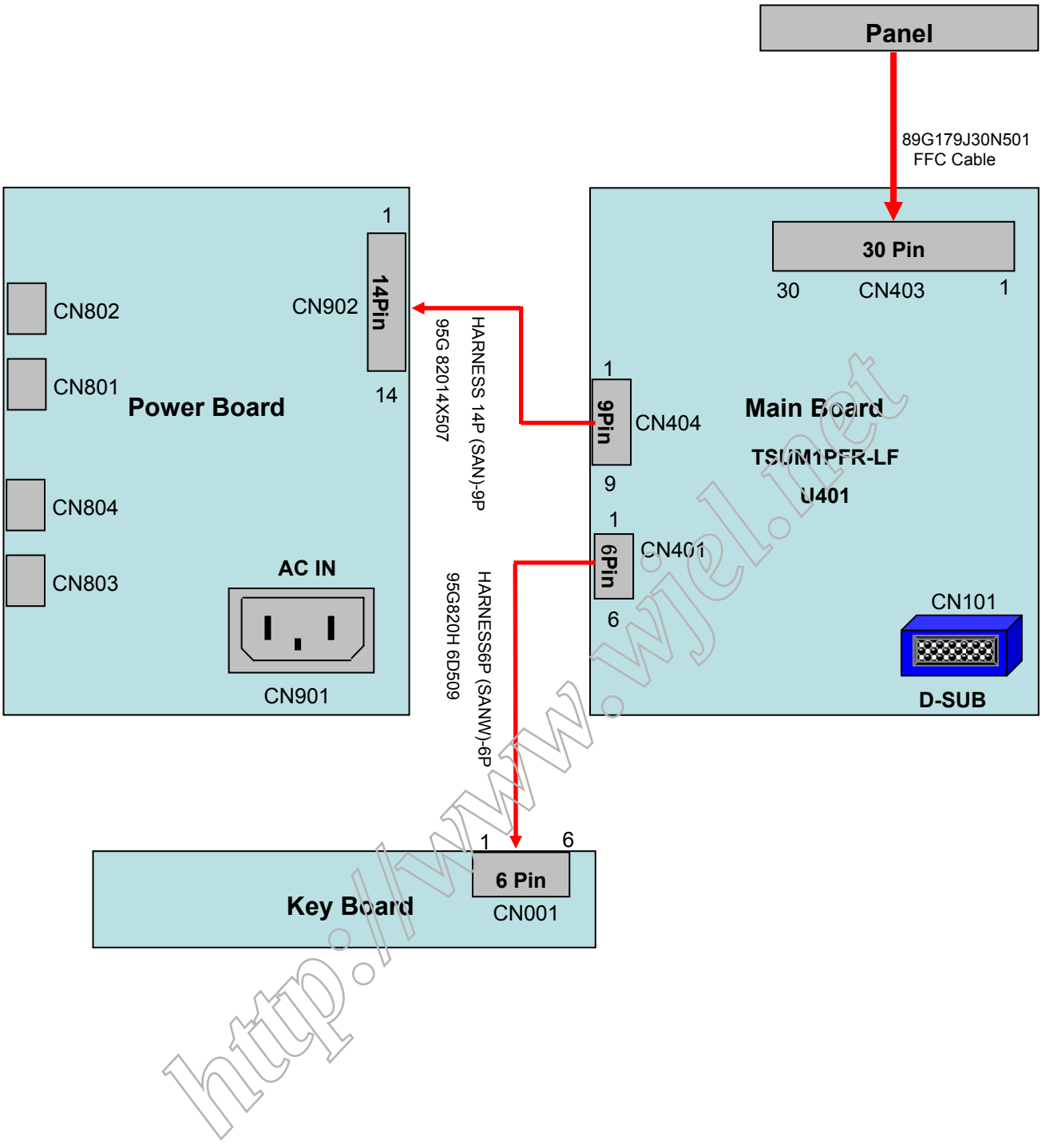
8. Wiring Diagram



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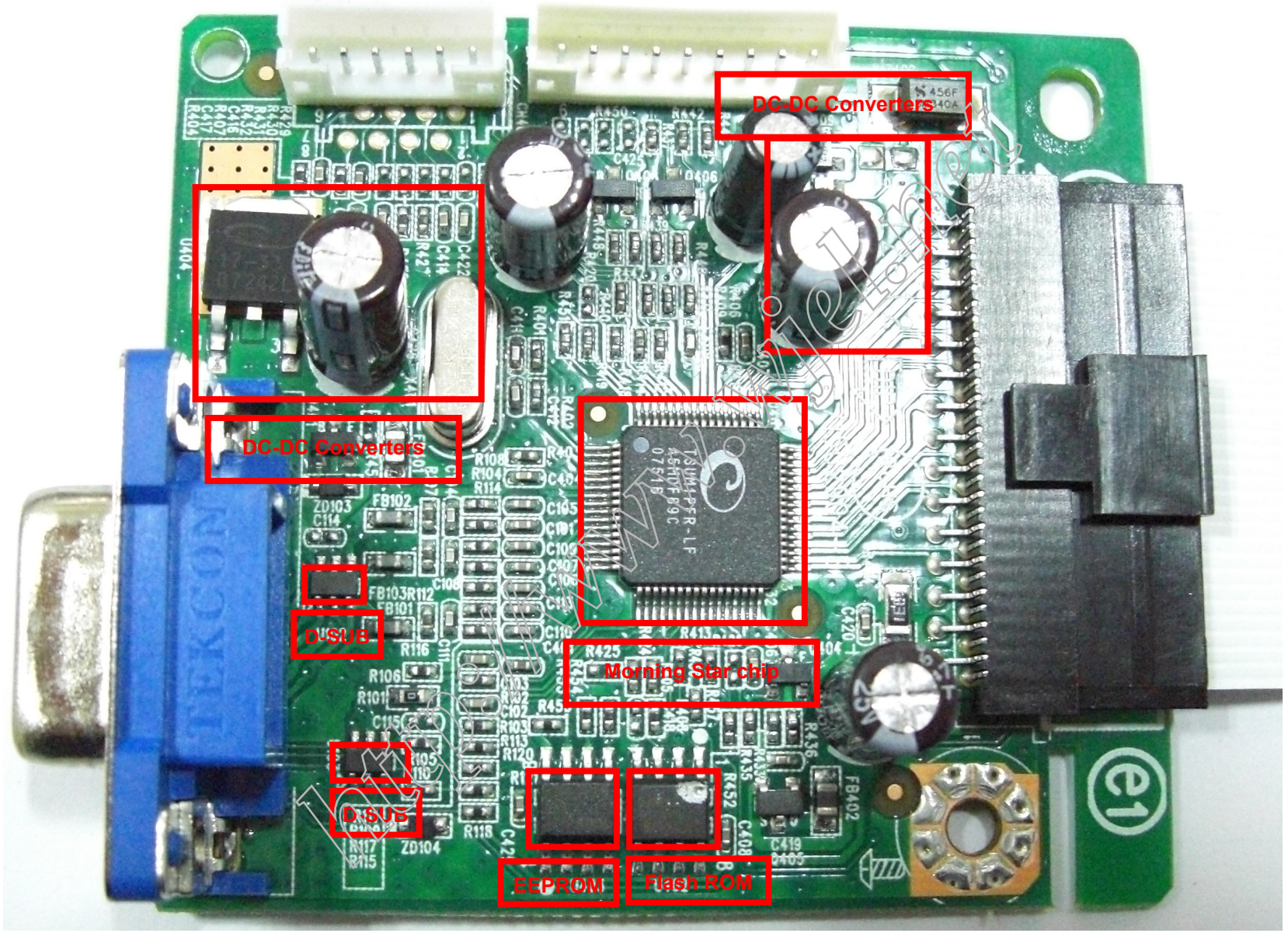
9. Scalar Board Overview



10. Mechanical Instructions

1. Back View as Fig1

Place the monitor face down on a smooth surface as Fig 1. Be careful to avoid scratch and injury during the uninstallation.

Fig1

2. Remove the hinge as Fig2.

Remove the three screws remarked in red to remove the hinge as Fig2.

Fig2

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3. Remove bezel and rear cover as Fig3~ Fig5.

Fig3

Fig4

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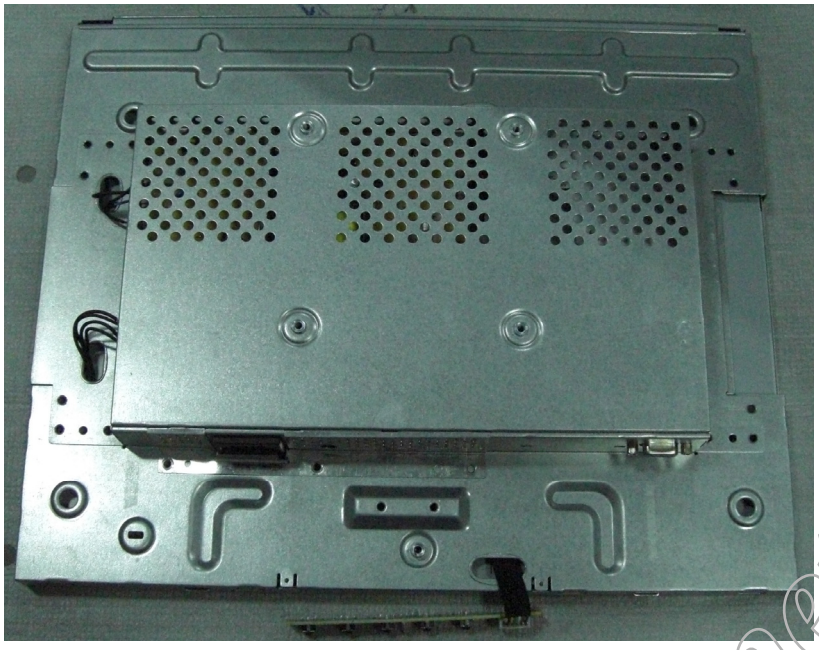

Fig5

4. Remove main frame cover as Fig6~Fig7.

a. Remove the two screws marked in red as Fig6.

b. Disconnect the four connector marked in blue as Fig6.

c. Remove the two screws marked in red as Fig7.

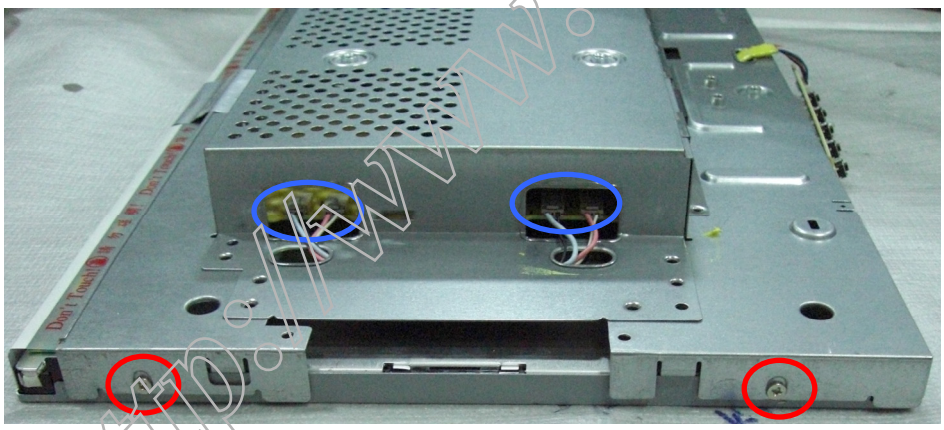

Fig6

Fig7

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5. Remove power board as Fig8.

a. Remove the two screws marked in red as Fig8.

b. Disconnect the connector marked in blue as Fig8.

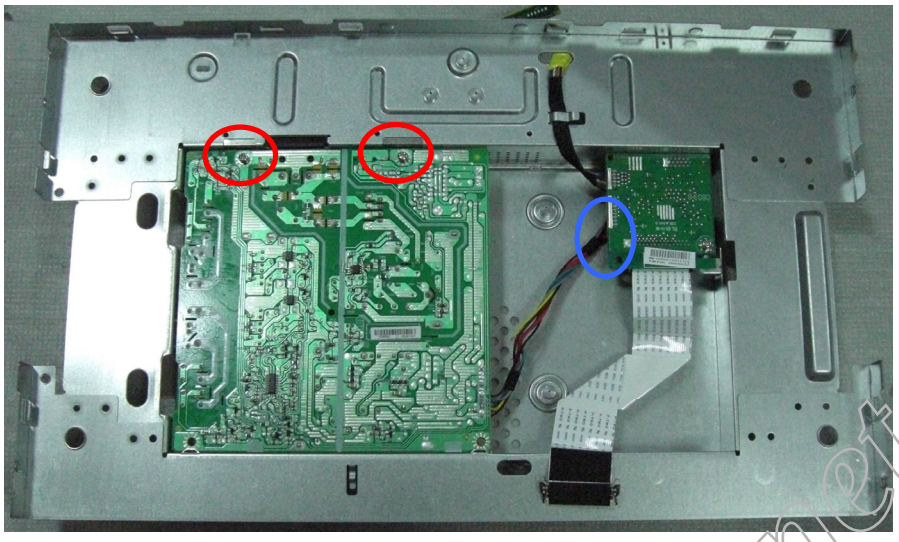

Fig8

6. Remove scalar board as Fig9~Fig10.

a. Remove the screw remarked in red as Fig9.

b. Disconnect the two connectors marked in blue as Fig9.

c. Remove the two screws remarked in red as Fig10.

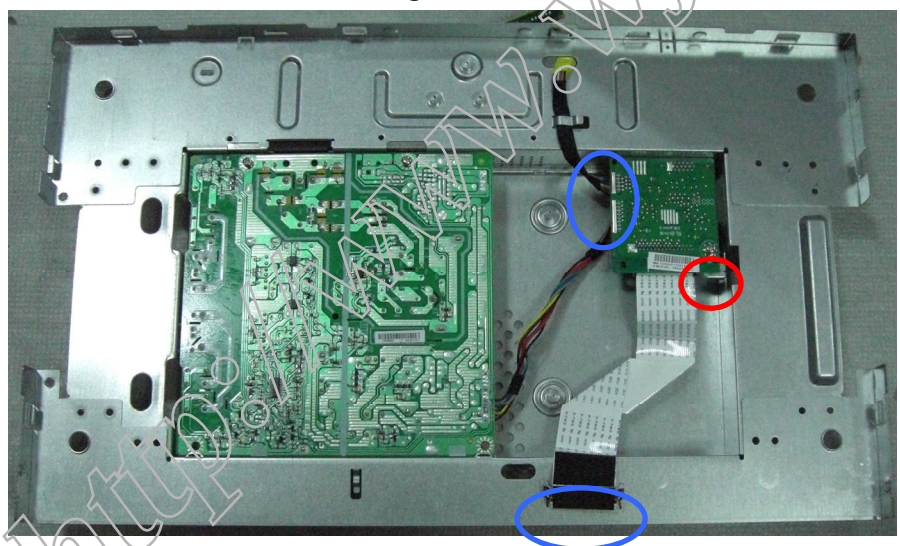

Fig9

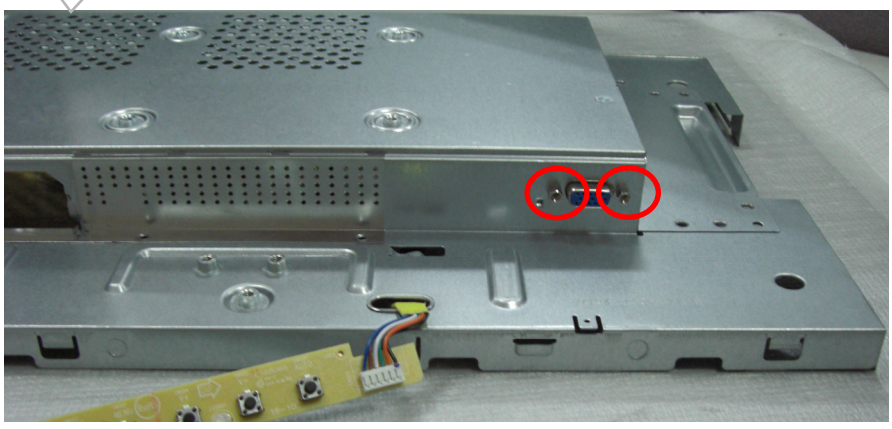

Fig10

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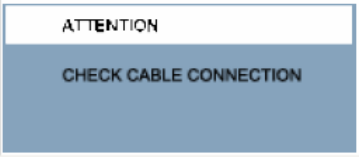
11. Trouble Shooting

This page deals with problems that can be corrected by a user. If the problem still persists after you have tried these solutions, contact Philips customer service representative.

Common Problems	
Having this problem	**Check these items**
No Picture (Power LED not lit)	• Make sure the power cord is plugged into the power outlet and into the back of the monitor. • First, ensure that the power button on the front of the monitor is in the OFF position, then press it to the ON position.
No Picture (Power LED is amber or yellow)	• Make sure the computer is turned on. • Make sure the VGA cable is properly connected to your computer. • Check to see if the monitor cable has bent pins. • The Energy Saving feature may be activated.
Screen says 	• Make sure the monitor cable is properly connected to your computer. (Also refer to the Quick Set-Up Guide). • Check to see if the monitor cable has bent pins. • Make sure the computer is turned on.
AUTO button not working properly	• The Auto Function is designed for use on standard Macintosh or IBM-compatible PCs running Microsoft Windows. • It may not work properly if using nonstandard PC or video card.
Imaging Problems	
Display position is incorrect	• Press the Auto button. • Adjust the image position using the Phase/Clock of More Settings in OSD Main Controls.
Image vibrates on the screen	• Check that the VGA cable is properly connected to the graphics board or PC.

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Vertical flicker appears	• Press the Auto button. • Eliminate the vertical bars using the Phase/Clock of More Settings in OSD Main Controls.
Horizontal flicker appears	• Press the Auto button. • Eliminate the vertical bars using the Phase/Clock of More Settings in OSD Main Controls.
The screen is too bright or too dark	• Adjust the contrast and brightness on On-Screen Display. (The backlight of the LCD monitor has a fixed life span. When the screen becomes dark or begins to flicker, please contact your sales representative).
An after-image appears	• If an image remains on the screen for an extended period of time, it may be imprinted in the screen and leave an after-image. This usually disappears after a few hours
An after-image remains after the power has been turned off.	• This is characteristic of liquid crystal and is not caused by a malfunction or deterioration of the liquid crystal. The after-image will disappear after a peroid of time.
Green, red, blue, dark, and white dots remains	• The remaining dots are normal characteristic of the liquid crystal used in today's technology.
For further assistance, refer to the Consumer Information Centers list and contact Philips customer service representative.	

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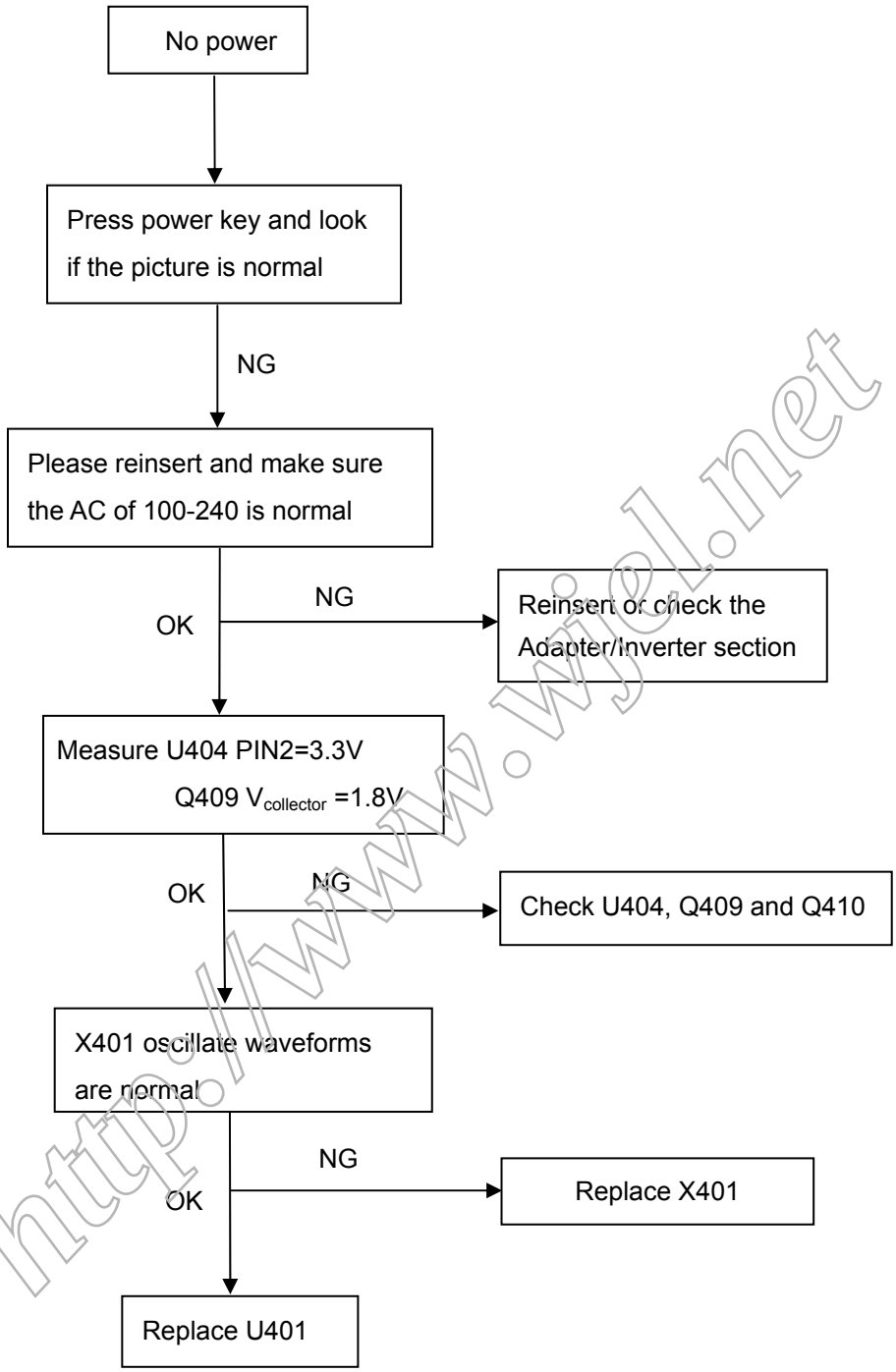
12. Repair Flow Chart

12.1 Main Board

(1). No Power



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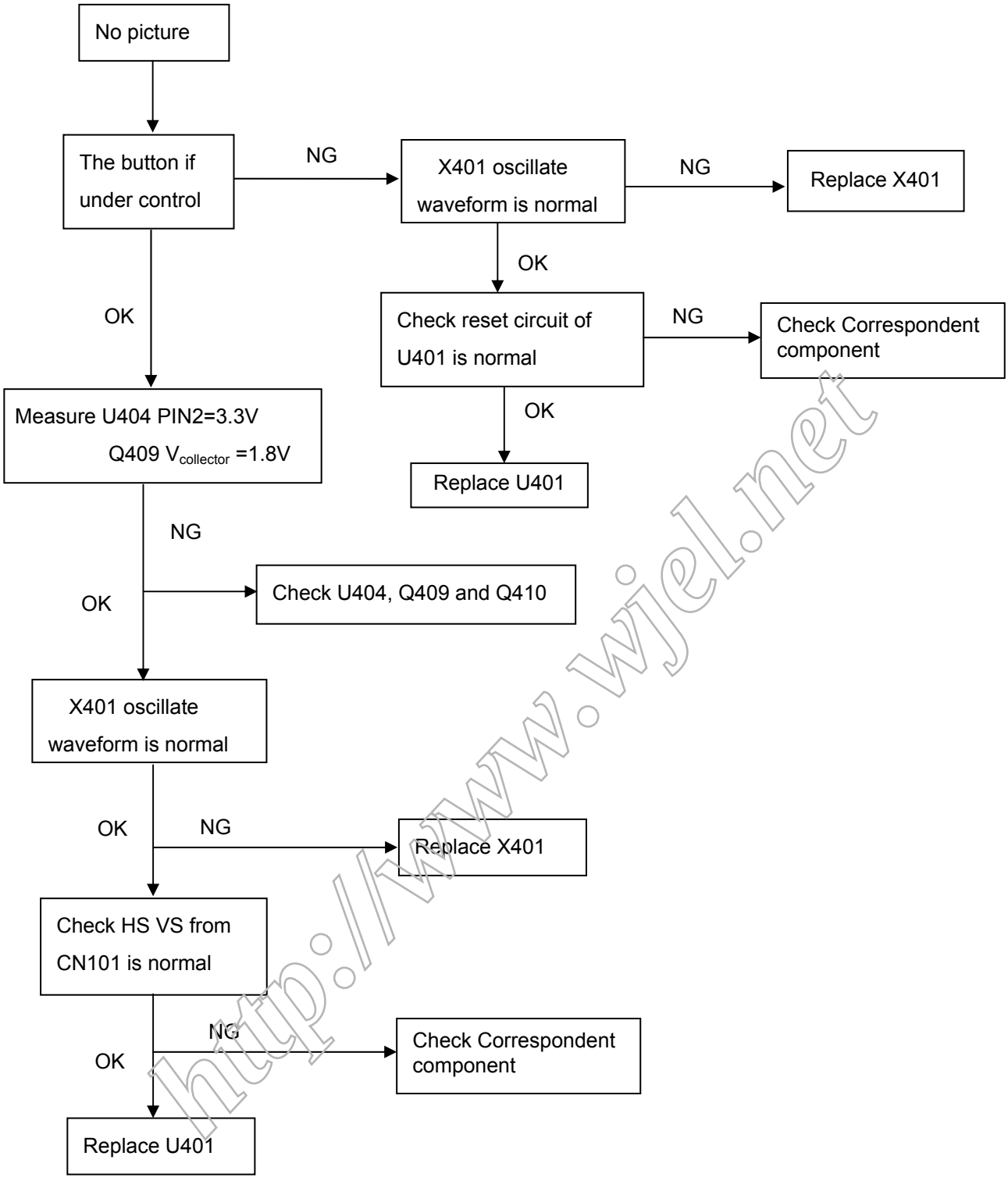
(2). No Picture



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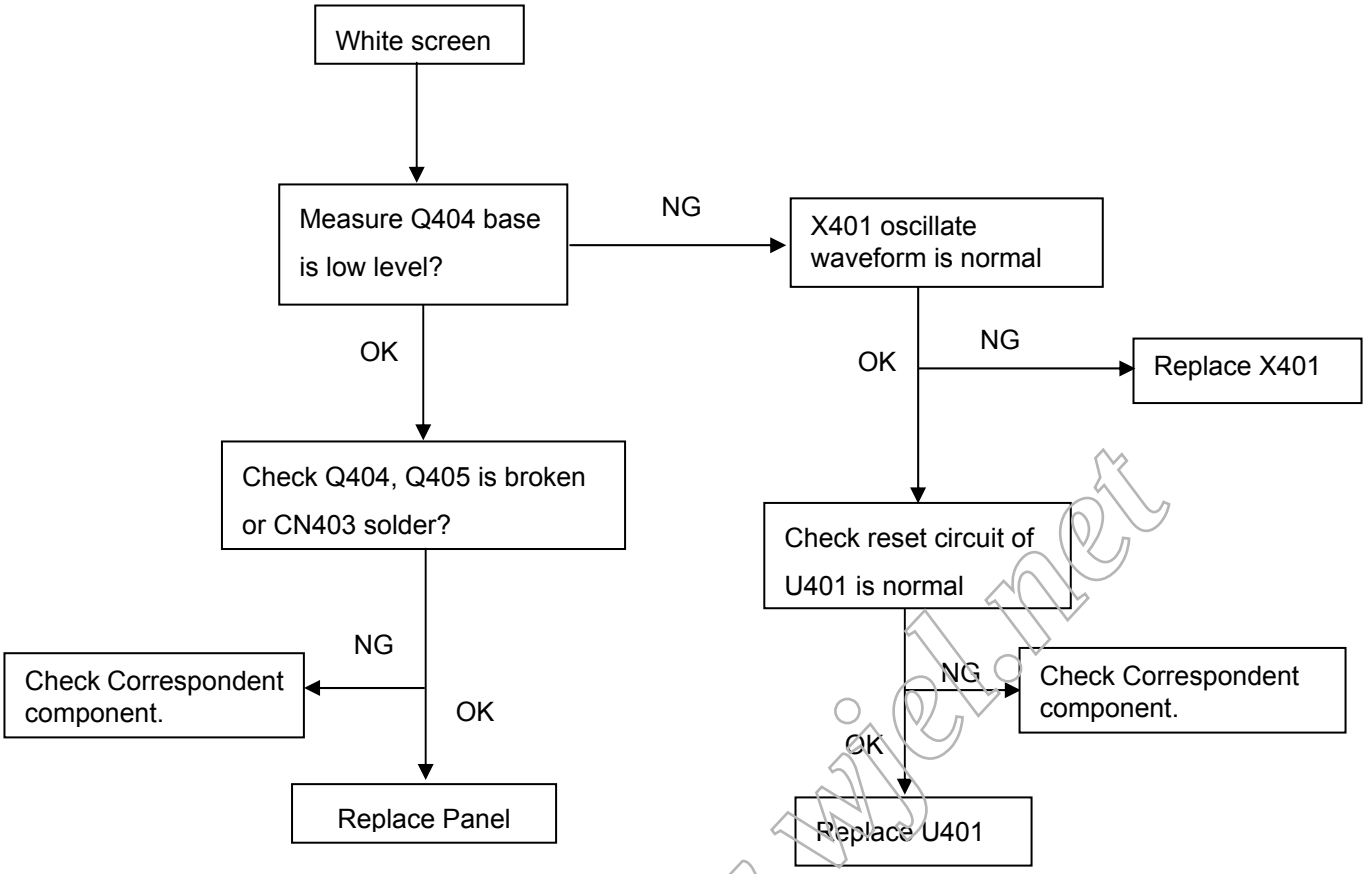
(3). White screen



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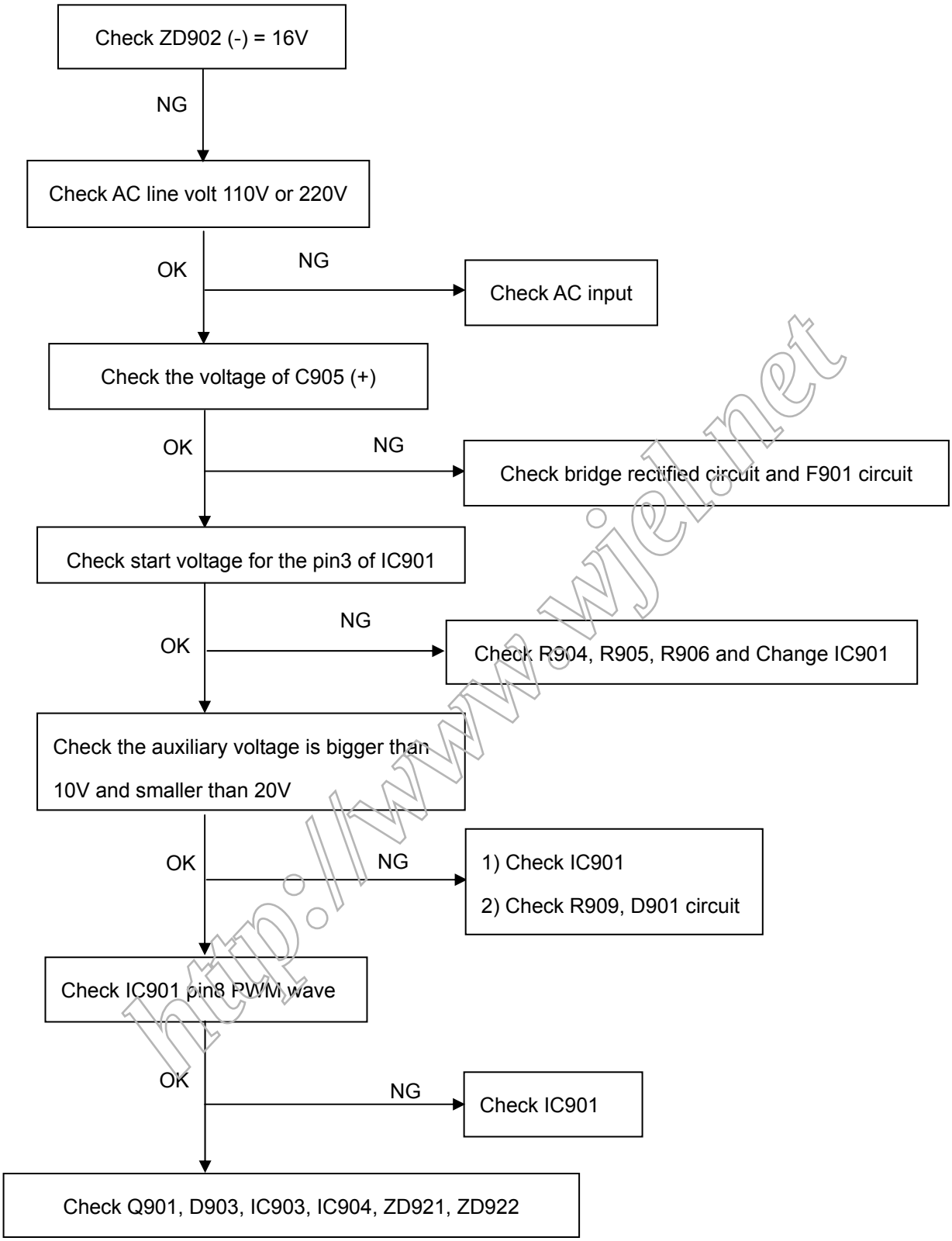
11.2. Power/Inverter Board

(1) No power



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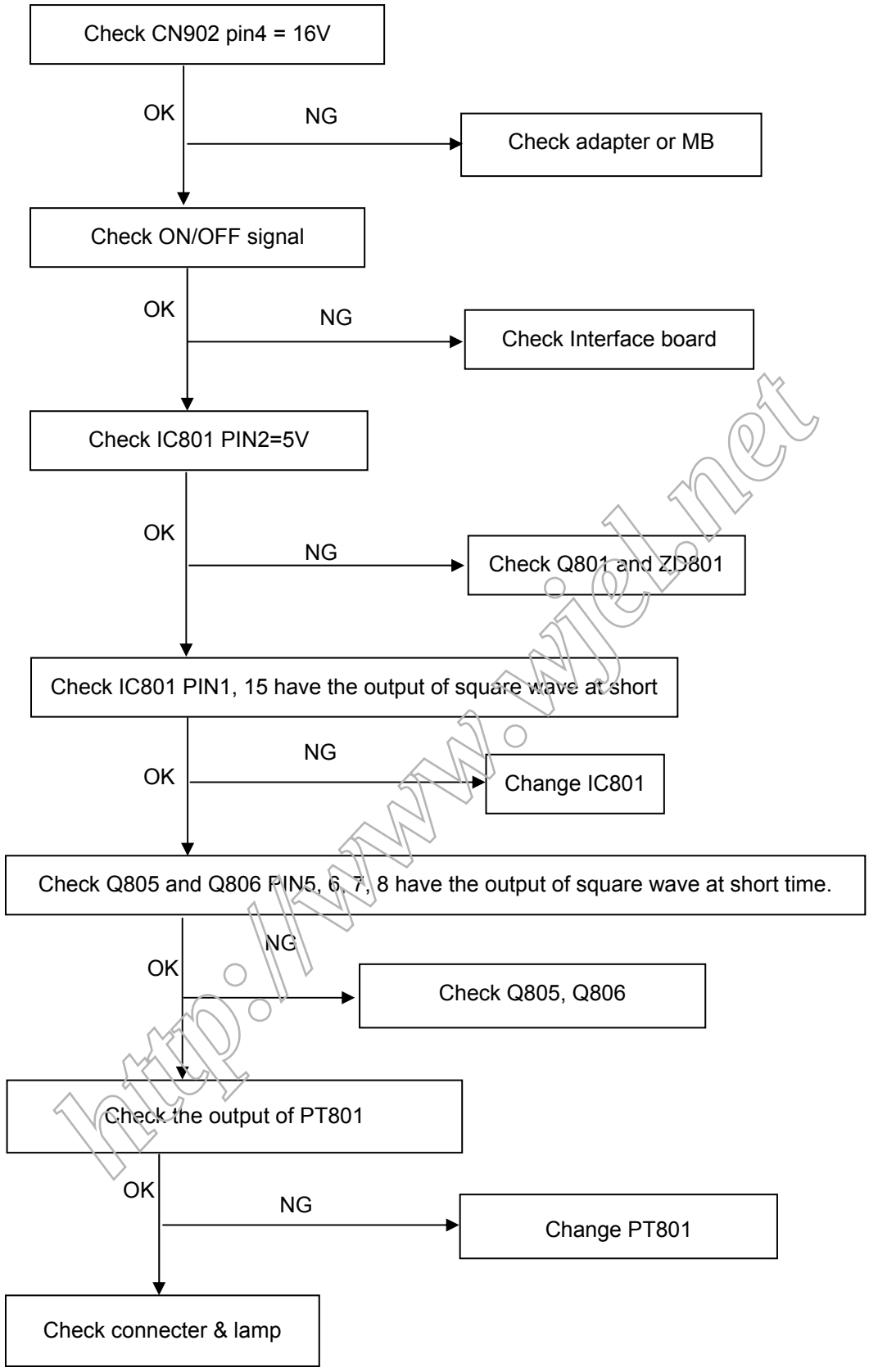
(2) W / LED, No Backlight



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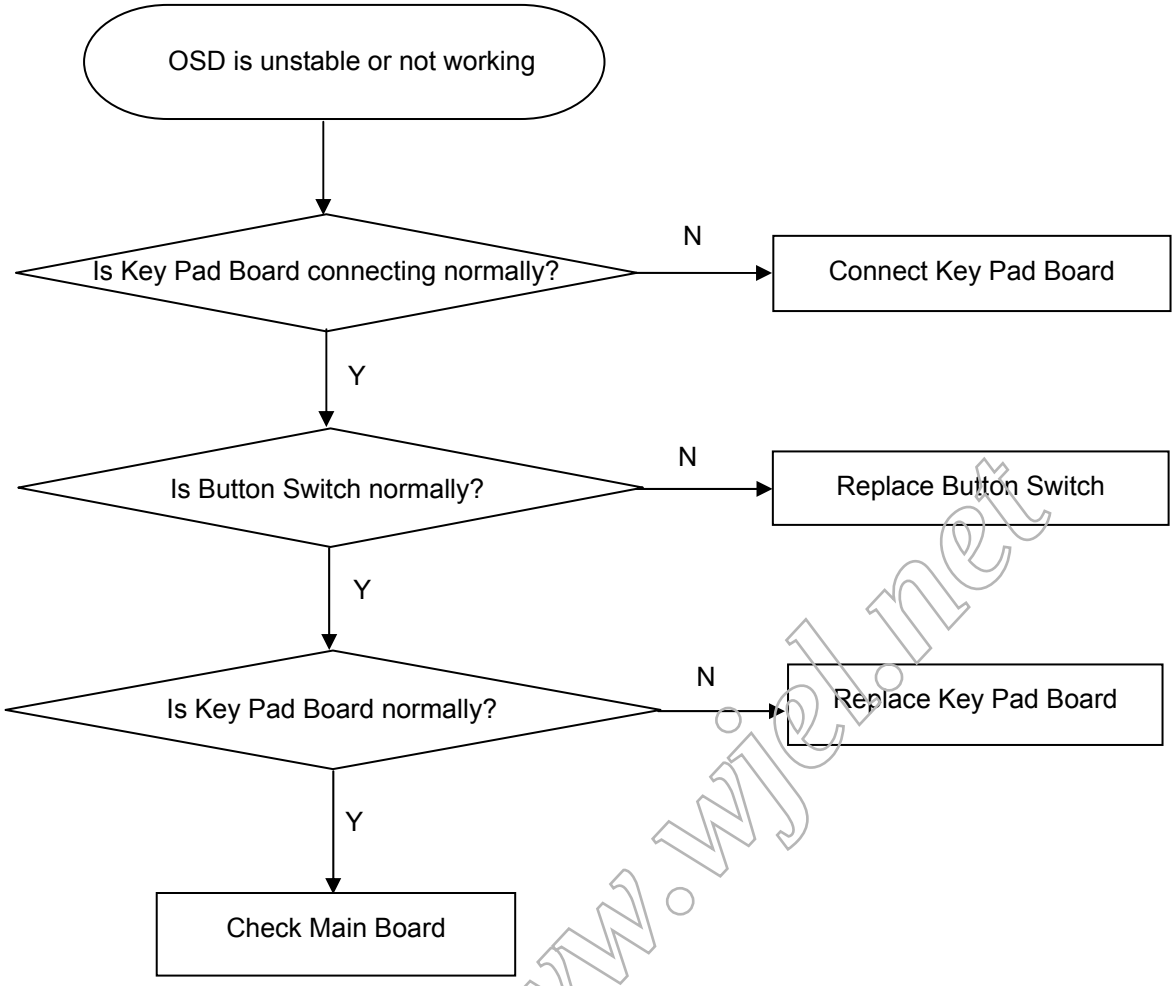
12.3 Key Board



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13. ISP Instruction

1. When do the part, need the tools as follow:

a. An i486 (or above) personal computer or compatible.

b. Microsoft operation system Windows 95/98/2000/XP.

c. " PORT95NT.exe" program

d. Software ISP SN Alignment kits

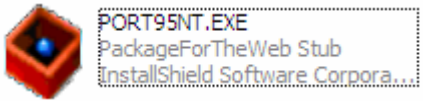
The kit contents:

a. ISP BOARD x1

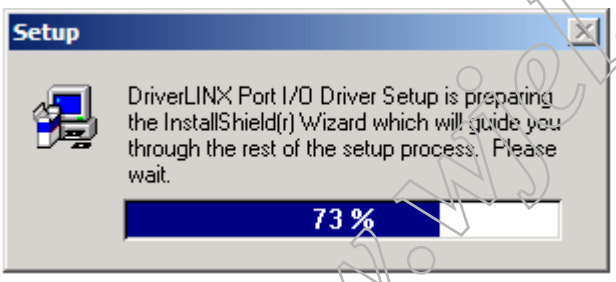
b. Printer cablex1

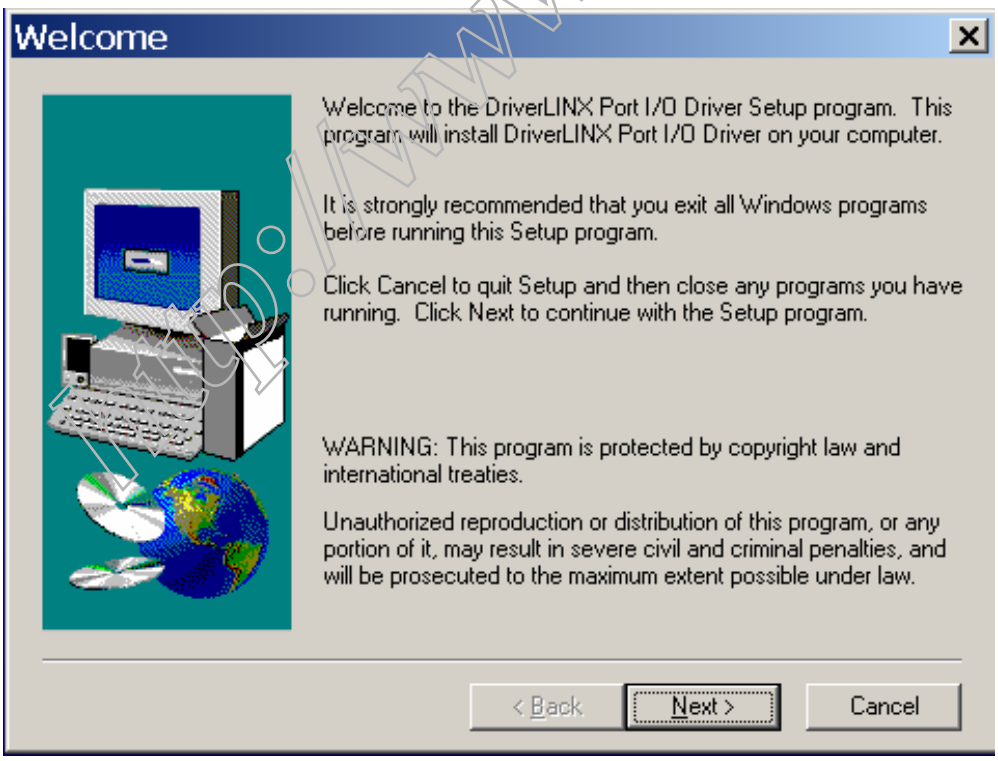
c. VGA cable x1

2. Install the "PORT95NT.EXE", and restart the computer.

You must install the 

at the first. The processing as follows:


Setup
DriverLINX Port I/O Driver Setup is preparing the InstallShield(r) Wizard which will guide you through the rest of the setup process. Please wait.
73 %


Welcome
Welcome to the DriverLINX Port I/O Driver Setup program. This program will install DriverLINX Port I/O Driver on your computer.
It is strongly recommended that you exit all Windows programs before running this Setup program.
Click Cancel to quit Setup and then close any programs you have running. Click Next to continue with the Setup program.
WARNING: This program is protected by copyright law and international treaties.
Unauthorized reproduction or distribution of this program, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under law.
< Back
Next >
Cancel

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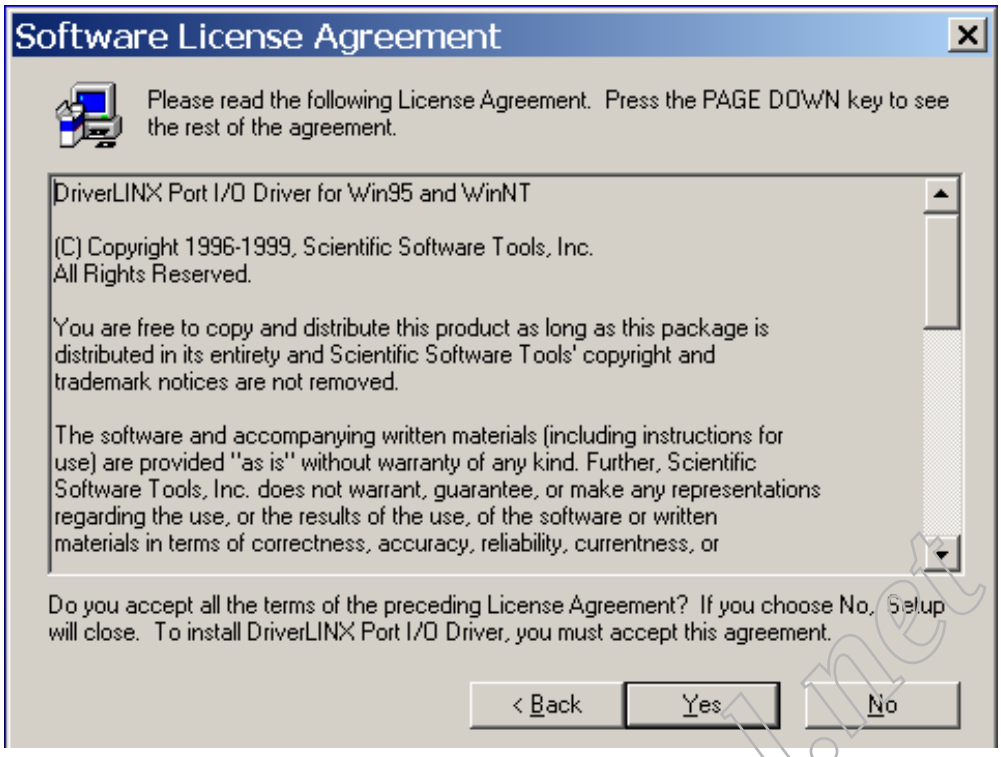
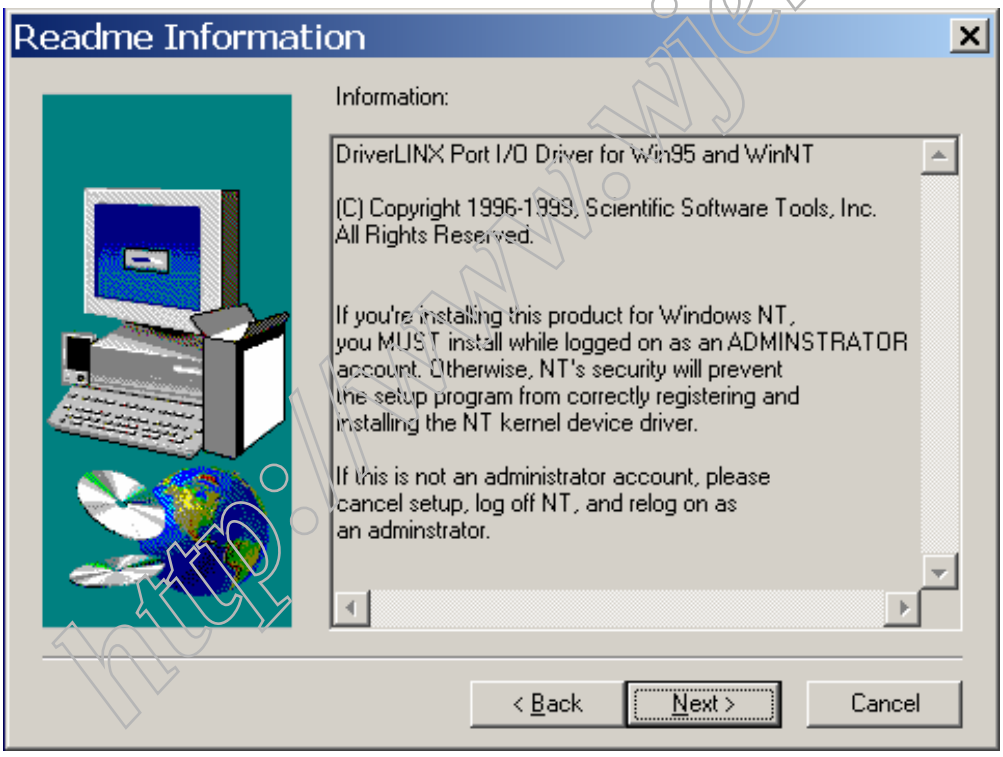

Software License Agreement
Please read the following License Agreement. Press the PAGE DOWN key to see the rest of the agreement.
DriverLINX Port I/O Driver for Win95 and WinNT
(C) Copyright 1996-1999, Scientific Software Tools, Inc.
All Rights Reserved.
You are free to copy and distribute this product as long as this package is distributed in its entirety and Scientific Software Tools' copyright and trademark notices are not removed.
The software and accompanying written materials (including instructions for use) are provided "as is" without warranty of any kind. Further, Scientific Software Tools, Inc. does not warrant, guarantee, or make any representations regarding the use, or the results of the use, of the software or written materials in terms of correctness, accuracy, reliability, currentness, or
Do you accept all the terms of the preceding License Agreement? If you choose No, Setup will close. To install DriverLINX Port I/O Driver, you must accept this agreement.
< Back
Yes
No


Readme Information
Information:
DriverLINX Port I/O Driver for Win95 and WinNT
(C) Copyright 1996-1999, Scientific Software Tools, Inc.
All Rights Reserved.
If you're installing this product for Windows NT, you MUST install while logged on as an ADMINSTRATOR account. Otherwise, NT's security will prevent the setup program from correctly registering and installing the NT kernel device driver.
If this is not an administrator account, please cancel setup, log off NT, and relog on as an adminstrator.
< Back
Next >
Cancel

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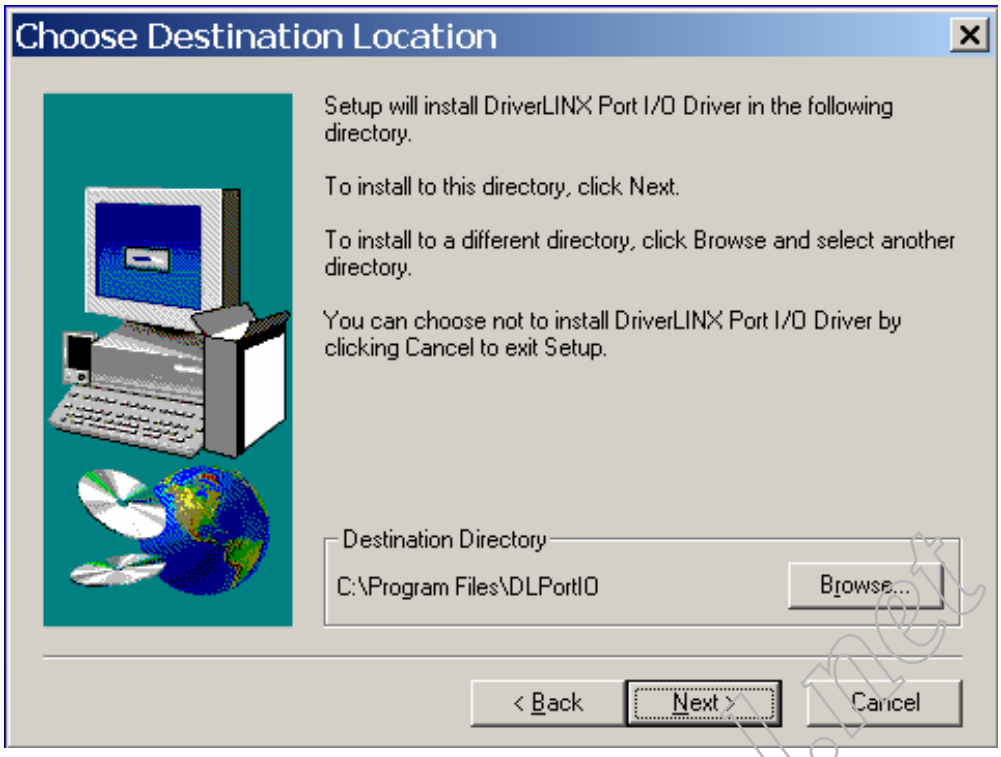
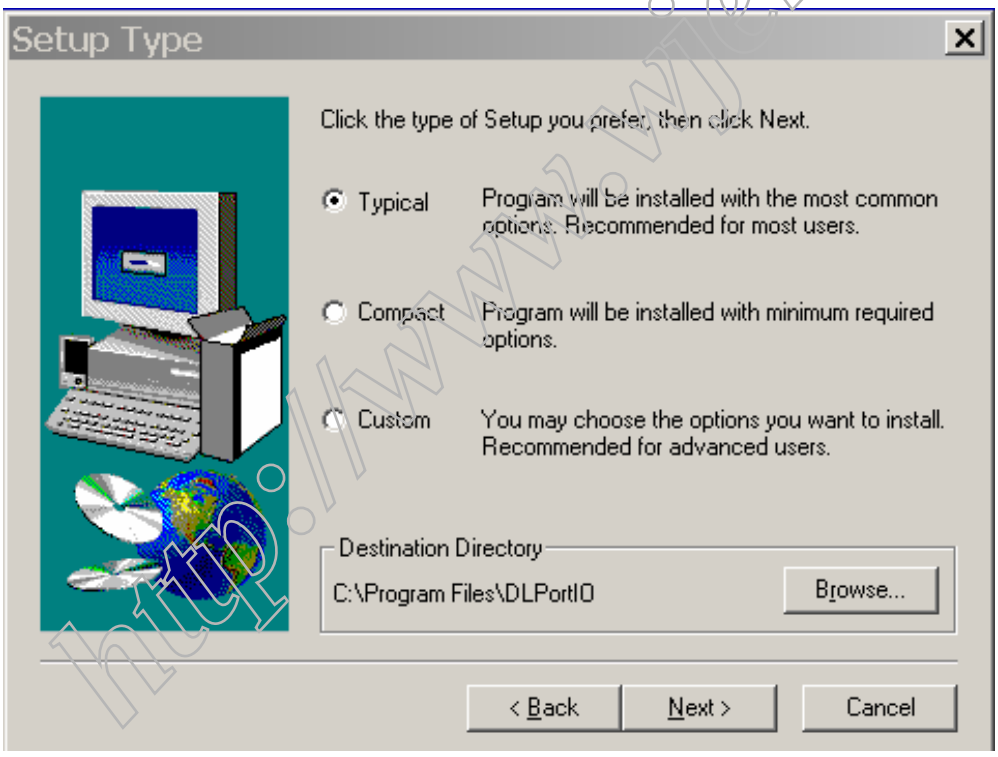

Choose Destination Location
Setup will install DriverLINX Port I/O Driver in the following directory.
To install to this directory, click Next.
To install to a different directory, click Browse and select another directory.
You can choose not to install DriverLINX Port I/O Driver by clicking Cancel to exit Setup.
Destination Directory
C:\Program Files\DLPortIO
Browse...
< Back
Next >
Cancel


Setup Type
Click the type of Setup you prefer, then click Next.
Typical
Program will be installed with the most common options. Recommended for most users.
Compact
Program will be installed with minimum required options.
Custom
You may choose the options you want to install. Recommended for advanced users.
Destination Directory
C:\Program Files\DLPortIO
Browse...
< Back
Next >
Cancel

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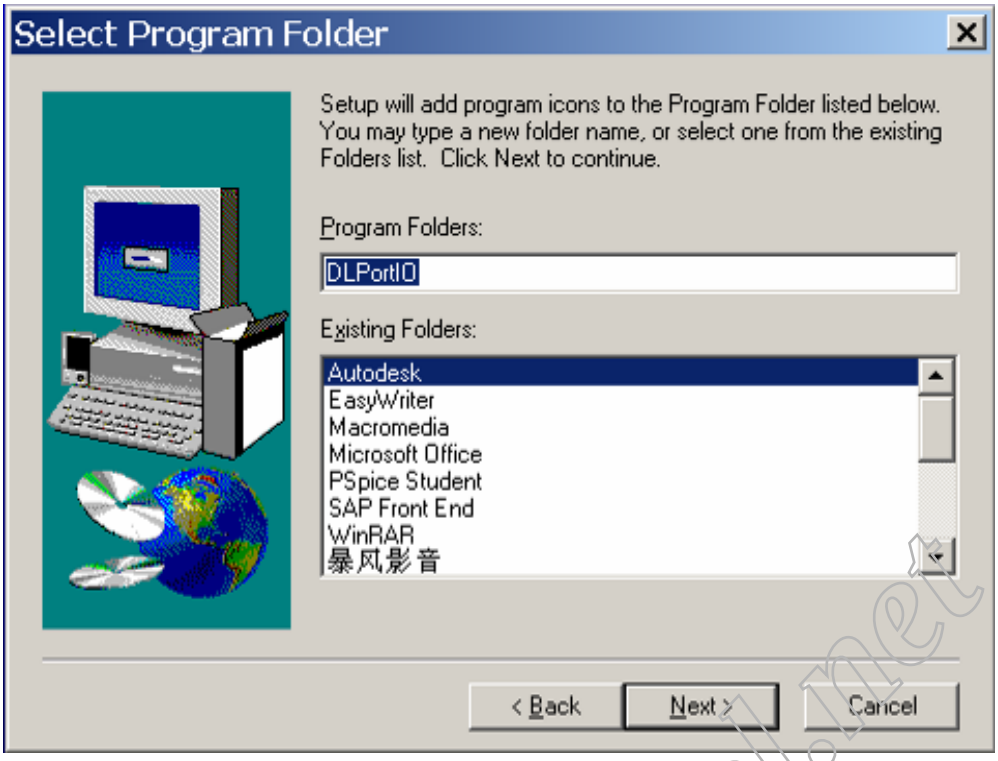
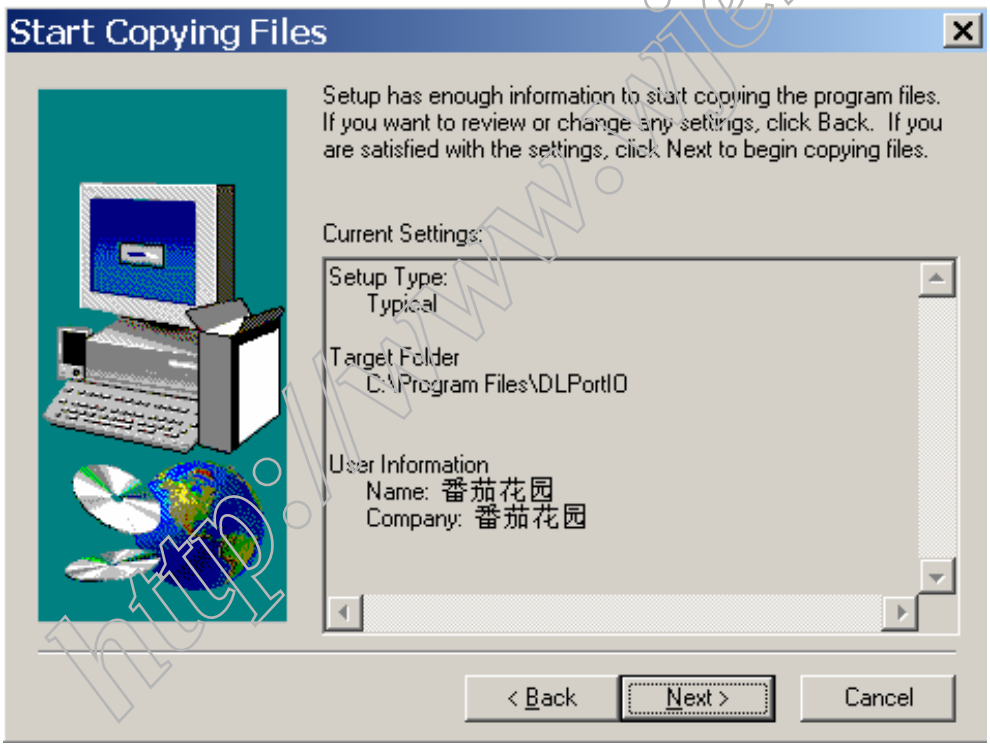
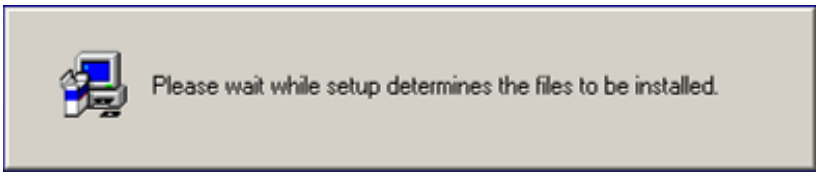



Start Copying Files
Setup has enough information to start copying the program files. If you want to review or change any settings, click Back. If you are satisfied with the settings, click Next to begin copying files.
Current Settings:
Setup Type:
Typical
Target Folder
C:\Program Files\DLPortIO
User Information
Name: 番茄花园
Company: 番茄花园
< Back
Next >
Cancel



Click Finish to complete the installation.

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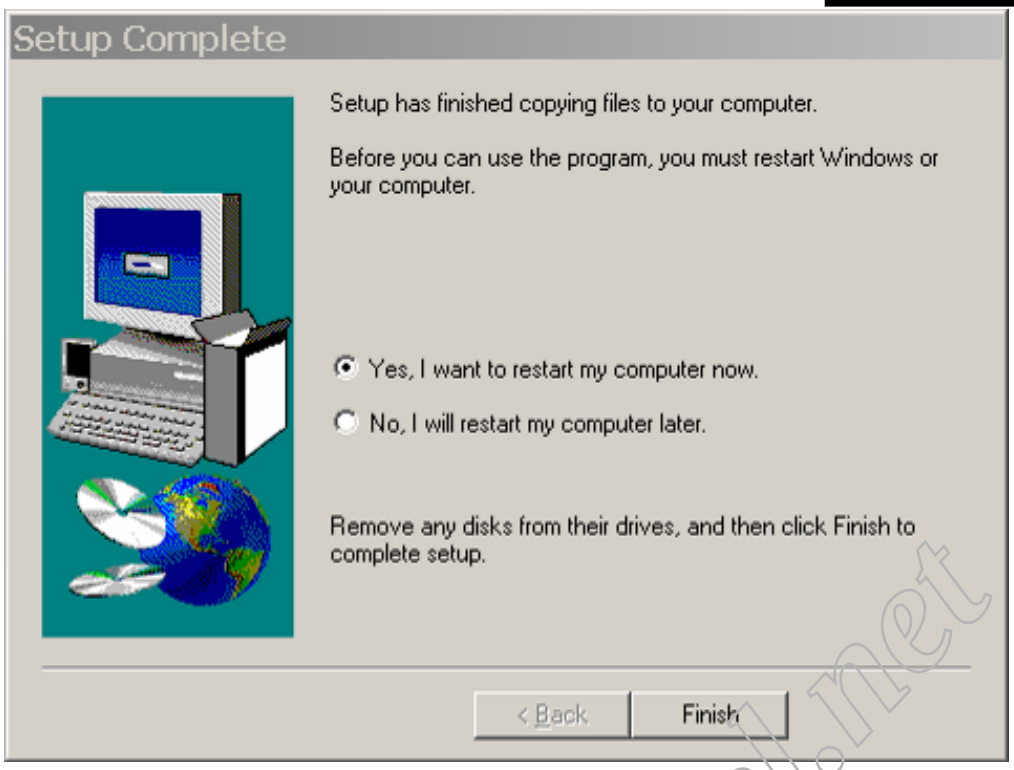
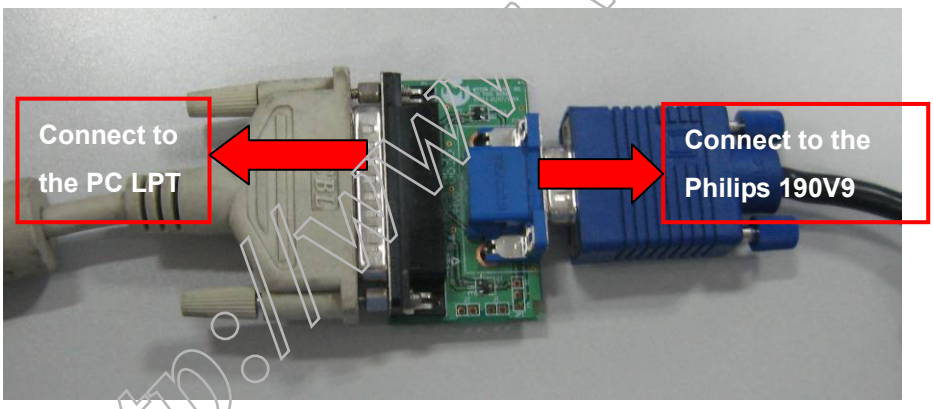

Setup Complete
Setup has finished copying files to your computer.
Before you can use the program, you must restart Windows or your computer.
Yes, I want to restart my computer now.
No, I will restart my computer later.
Remove any disks from their drives, and then click Finish to complete setup.
< Back
Finish

Note: After installation, you must restart the PC to take the setup to effect.

3. Connect the ISP board as follow:



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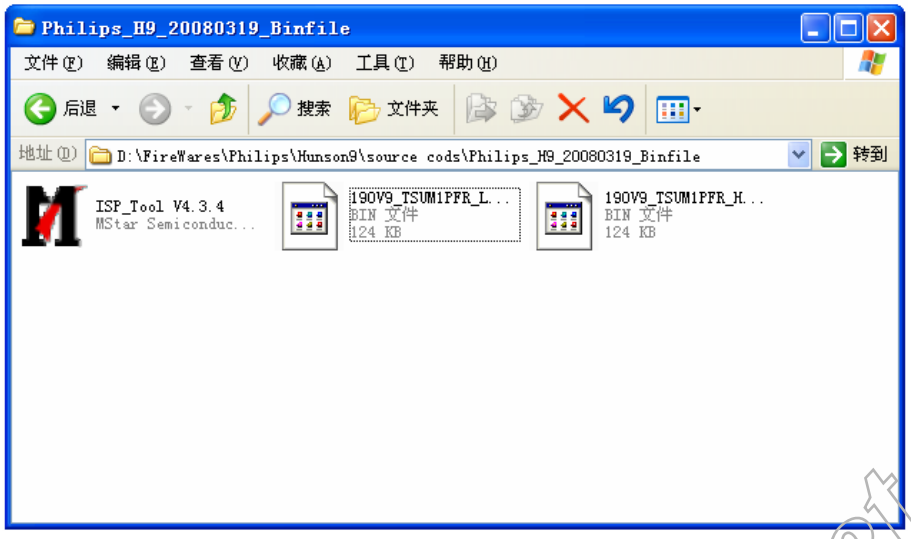
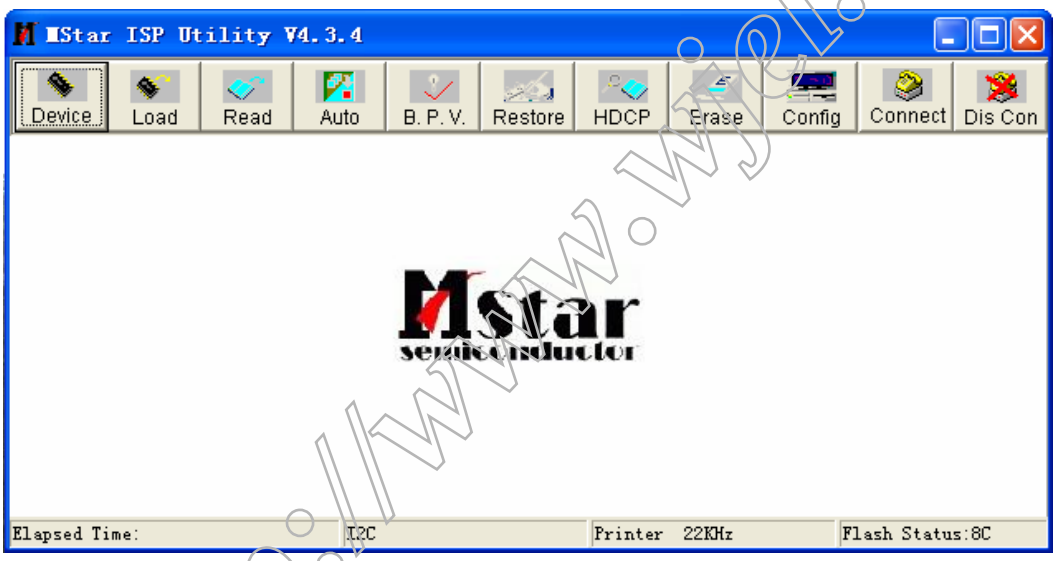
4. The process of ISP write is as follows.



a. Double-click ，running the program as follows:



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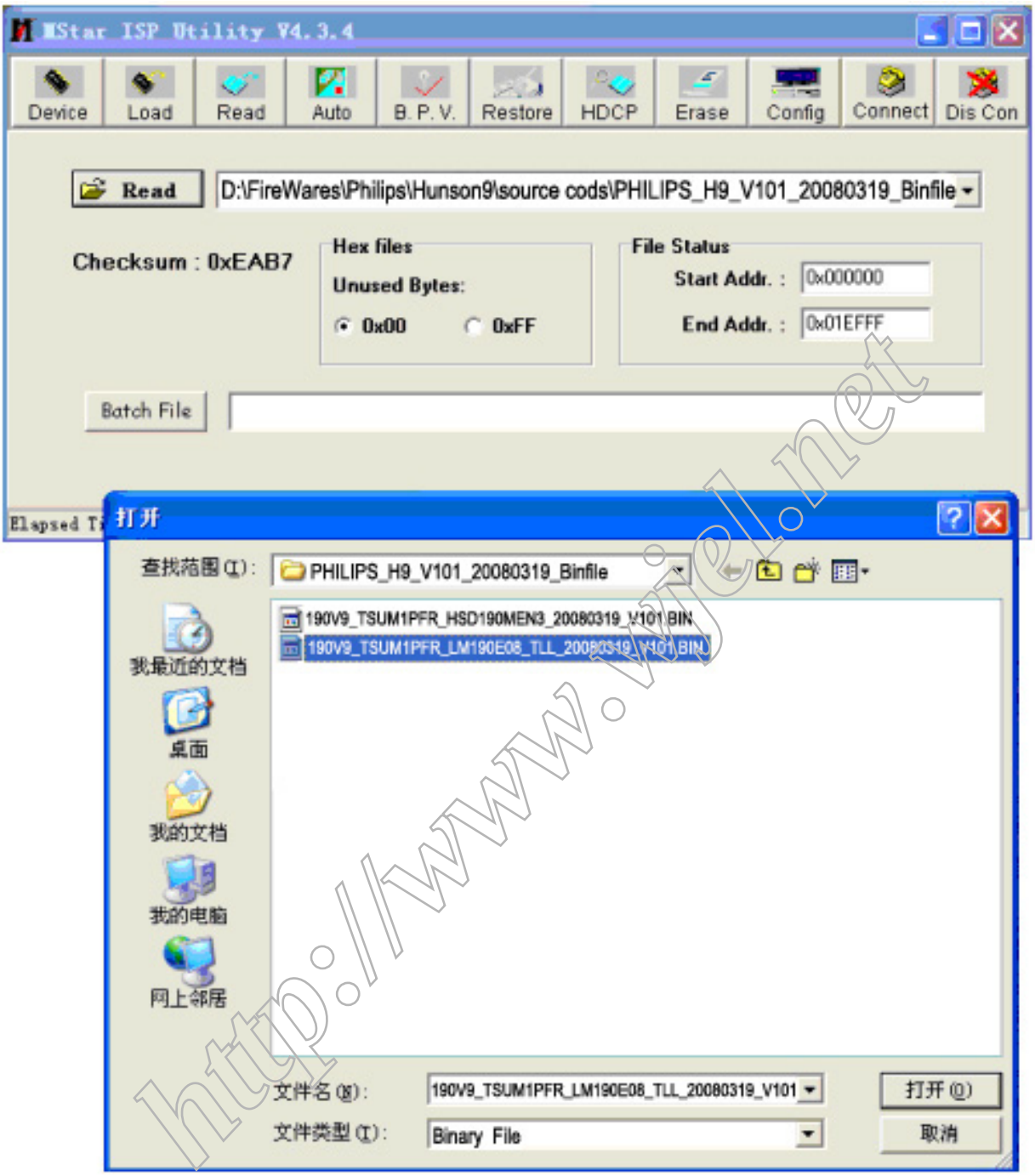
b. Click icon, search the program" 190V9_TSUM1PFR_LM190E08_TLL_20080319_V101", and click **open:**



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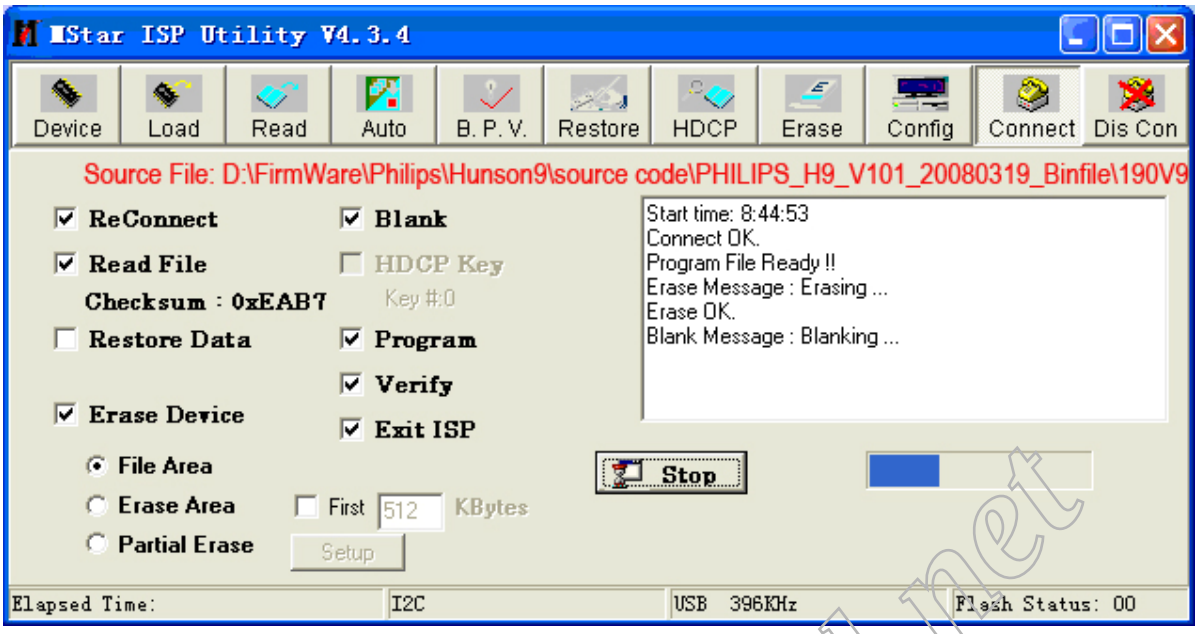
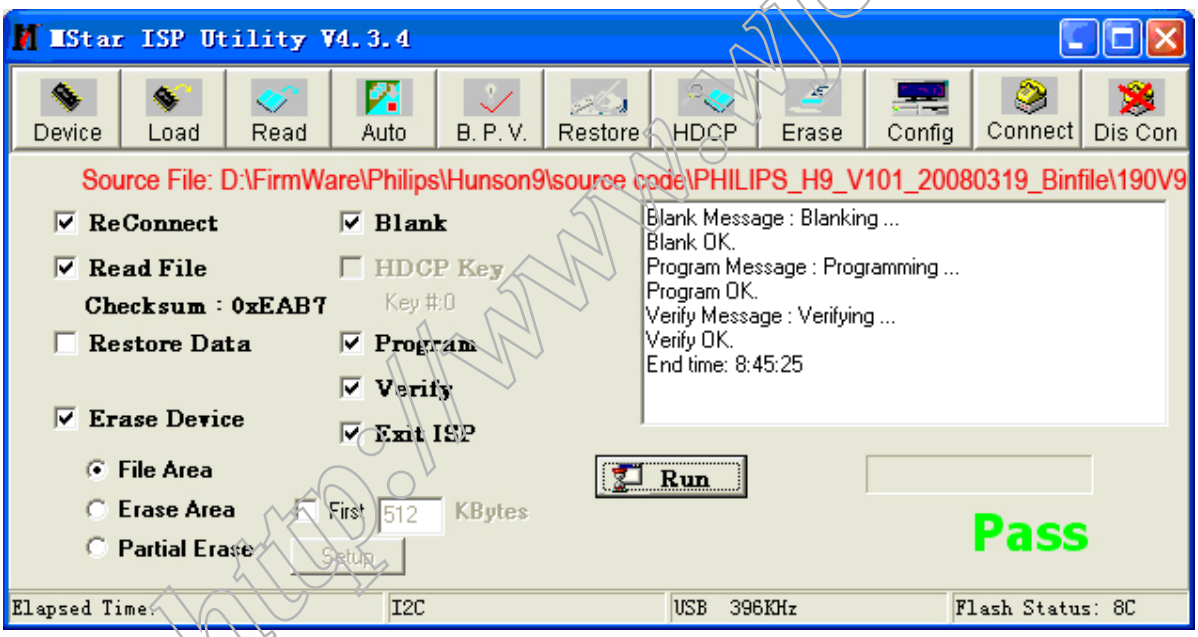
c. Click

icon, it will auto run. If burn in success, it will show as the follow picture:





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14. DDC Instruction

General

DDC Data Re-programming

In case the main EEPROM with Software DDC which store all factory settings were replaced because a defect, repaired monitor' the serial numbers have to be re-programmed.

It is advised to re- soldered the main EEPROM with Software DDC from the old board onto the new board if circuit board have been replaced, in this case the DDC data does not need to be re-programmed.

Additional information about DDC (Display Data Channel) may be obtained from Video Electronics Standards Association (VESA). Extended Display Identification Data (EDID) information may be also obtained from VESA.

1. An i486 (or above) personal computer or compatible.
2. Microsoft operation system Windows 95/98/2000/XP.
3. " PORT95NT.exe, WinDDC_ setup" program.
4. Software OSD SN Alignment kits

The kit contents:

a. OSD SN BOARD x1

b. Printer cablex1

c. VGA cable x1

d. Digital cable x1

e. 12V DC power source

1. Install the "PORT95NT.EXE", and restart the computer.

The process of installing "PORT95NT" has been specified in Item12, so it will not be specified again. If you have any problem, please read it in Item12.

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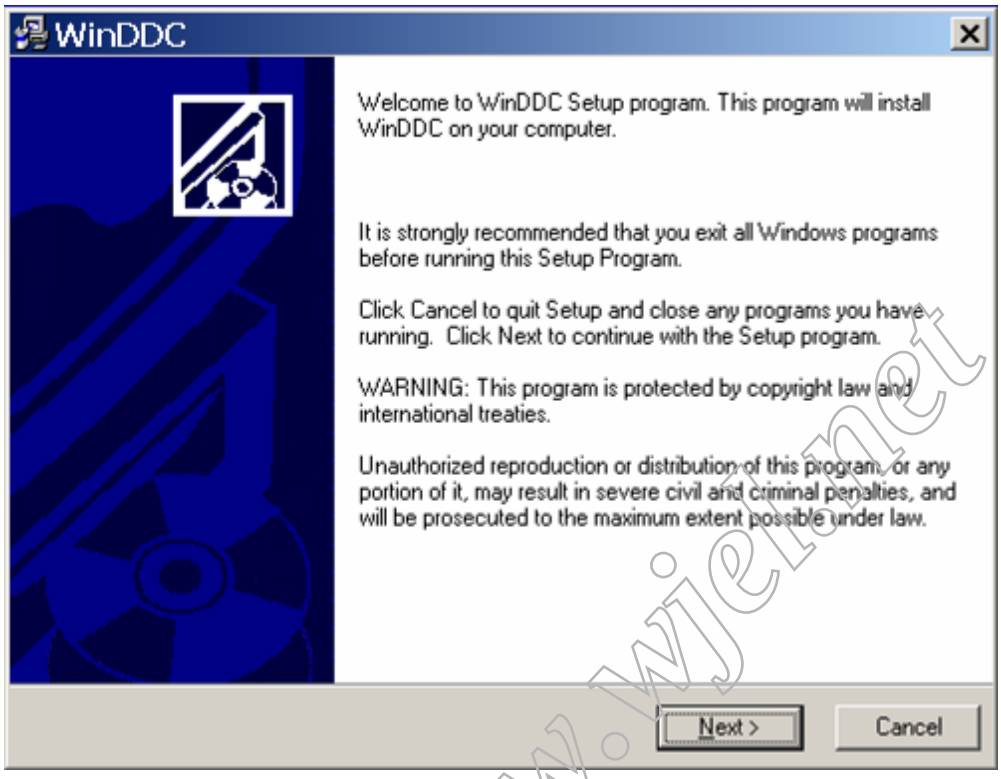
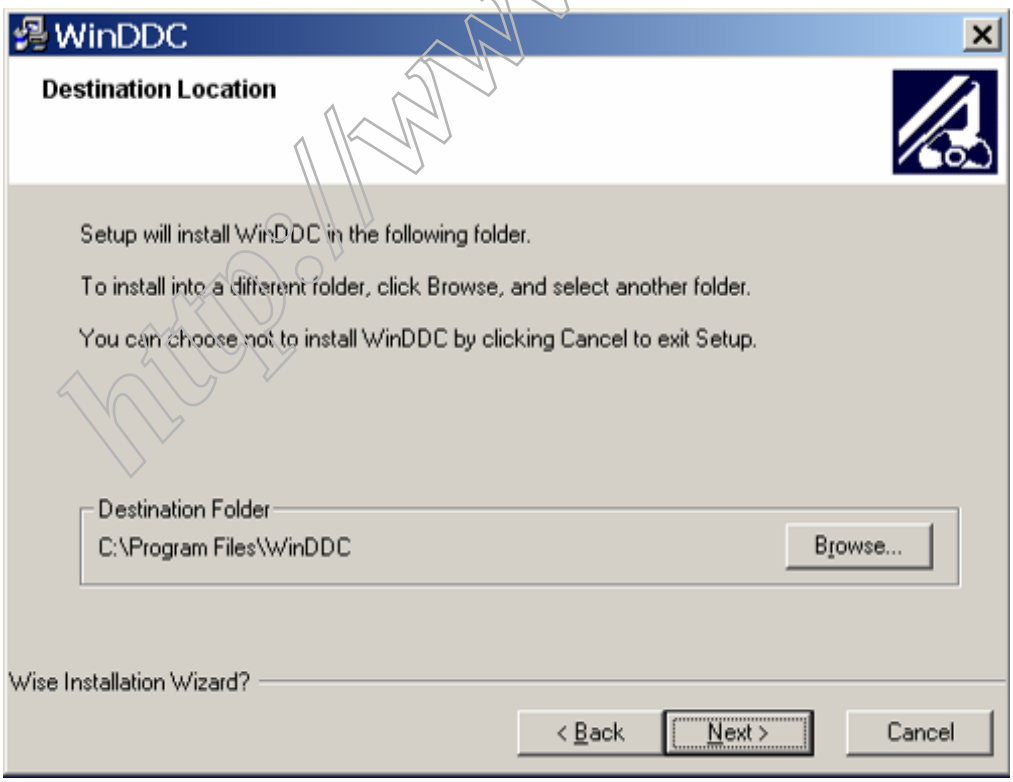
2. Install the "WinDDC_ setup"

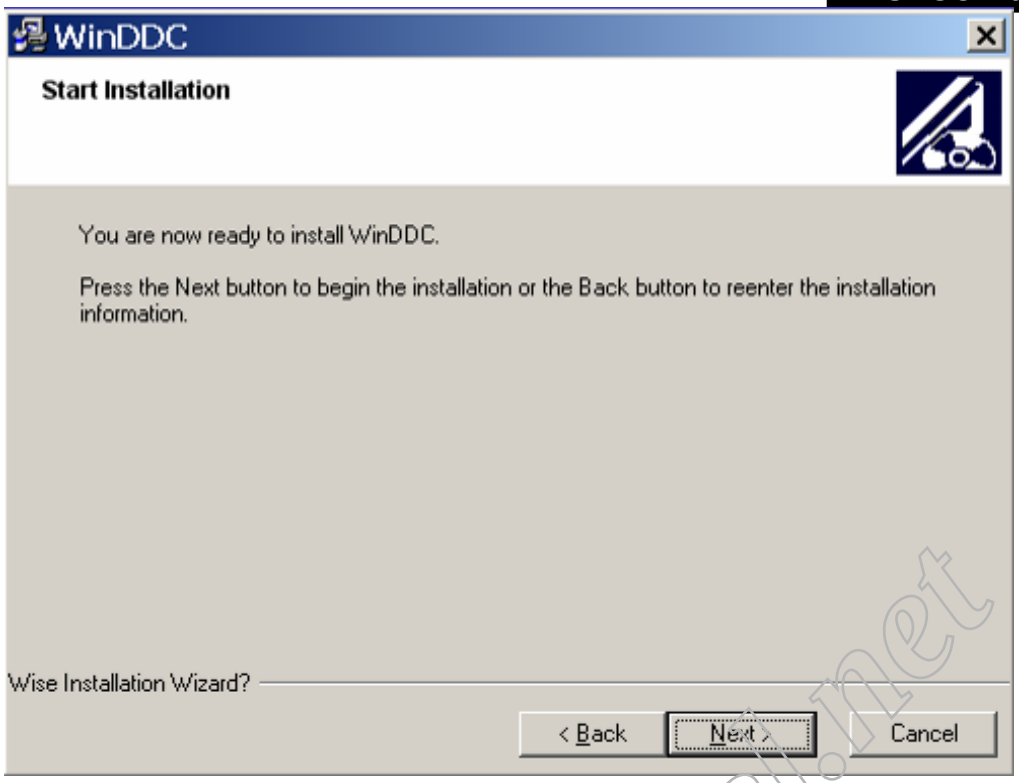
Second, you must install the

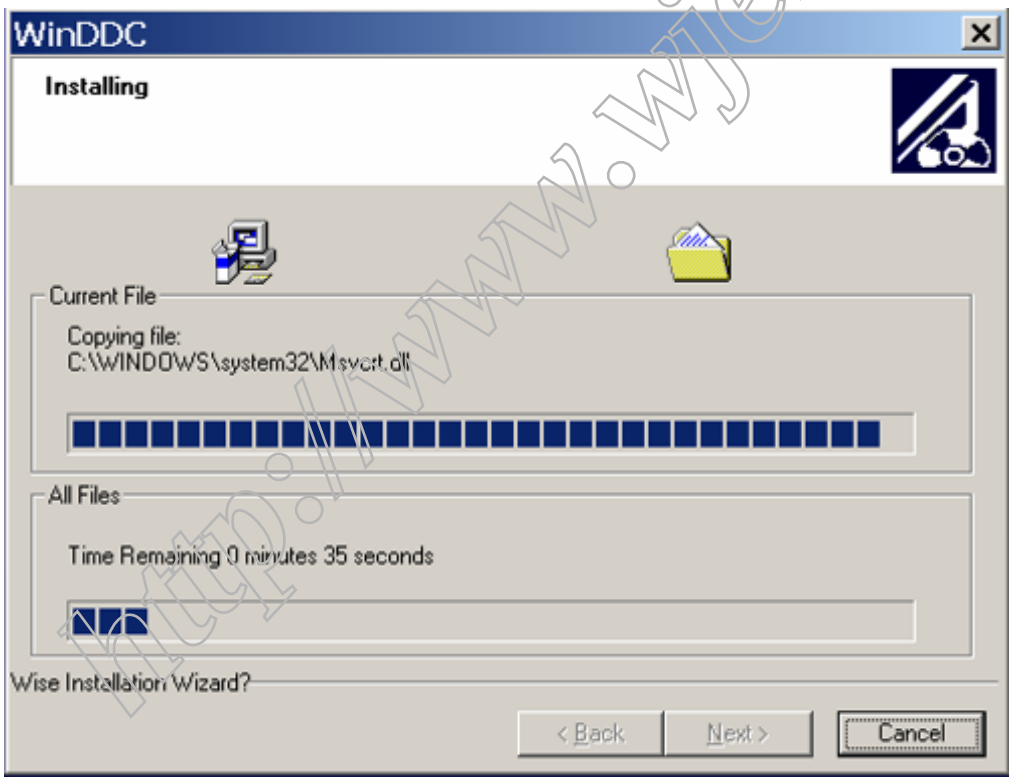
. The processing as follows:


WinDDC
Welcome to WinDDC Setup program. This program will install WinDDC on your computer.
It is strongly recommended that you exit all Windows programs before running this Setup Program.
Click Cancel to quit Setup and close any programs you have running. Click Next to continue with the Setup program.
WARNING: This program is protected by copyright law and international treaties.
Unauthorized reproduction or distribution of this program, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under law.
Next >
Cancel


WinDDC
Destination Location
Setup will install WinDDC in the following folder.
To install into a different folder, click Browse, and select another folder.
You can choose not to install WinDDC by clicking Cancel to exit Setup.
Destination Folder
C:\Program Files\WinDDC
Browse...
Wise Installation Wizard?
< Back
Next >
Cancel

http://www.wiemet


WinDDC
Start Installation
You are now ready to install WinDDC.
Press the Next button to begin the installation or the Back button to reenter the installation information.
Wise Installation Wizard?
< Back
Next >
Cancel



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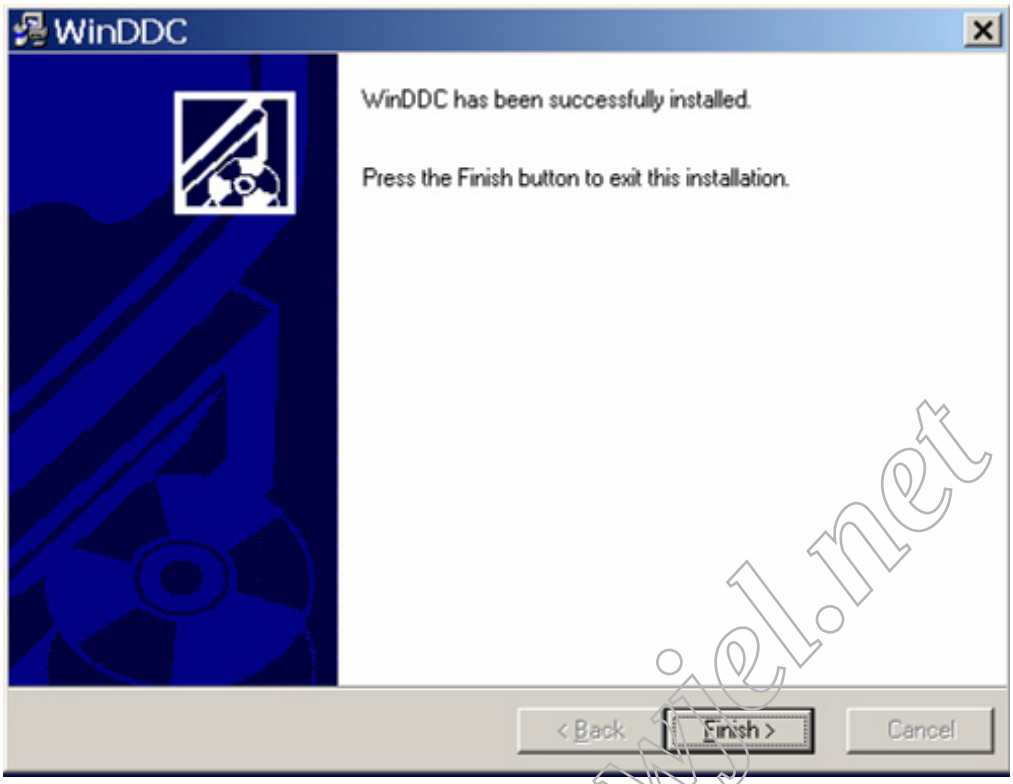
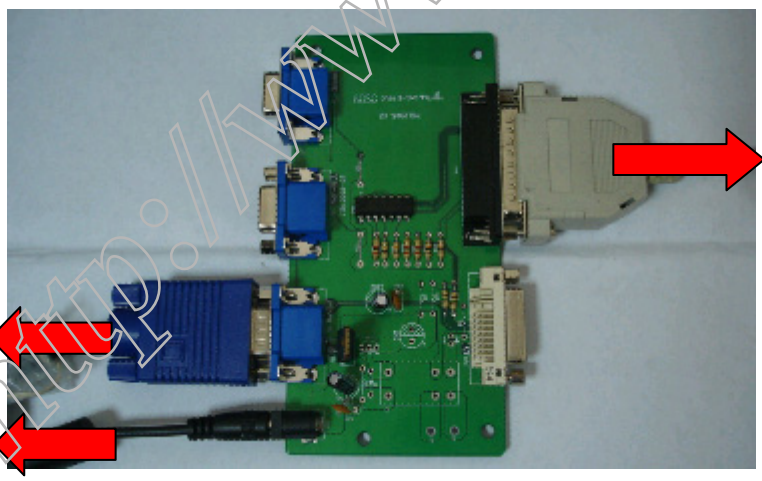
Click Finish to complete the installation.



3. Connect the DDC board as follow:



When you write analog EDID, Connect this port to the Philips 190V9's VGA port

12V Input

Connect to the PC LPT

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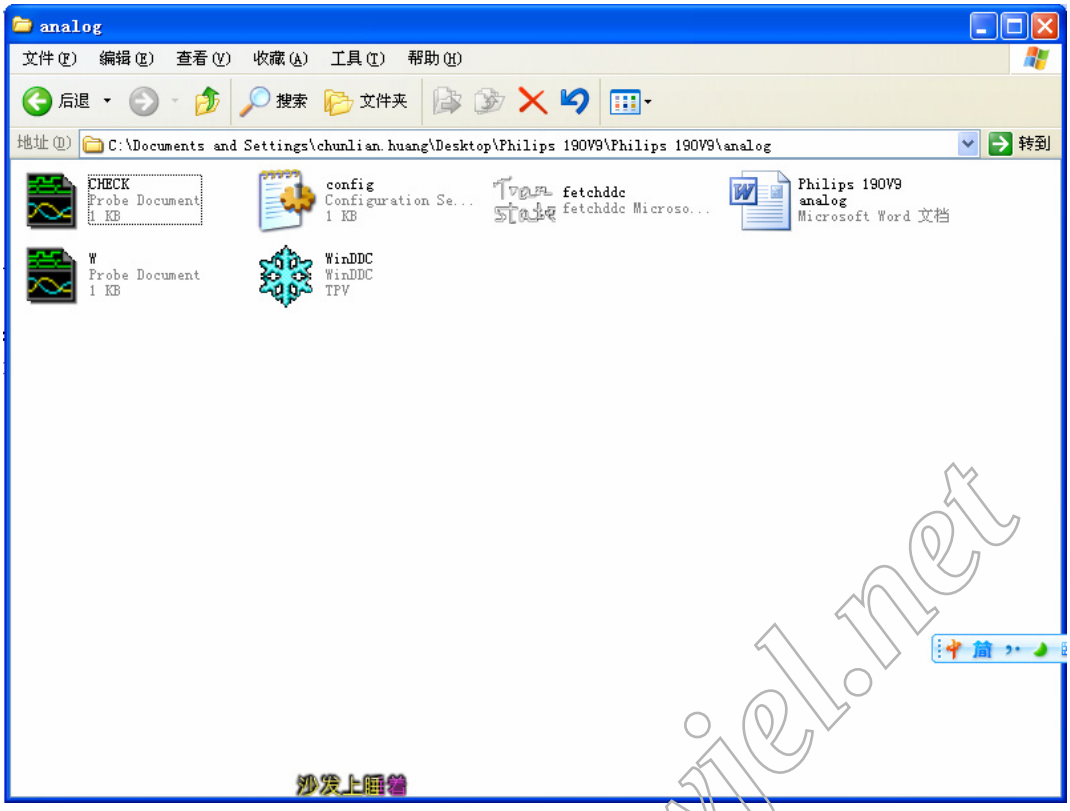
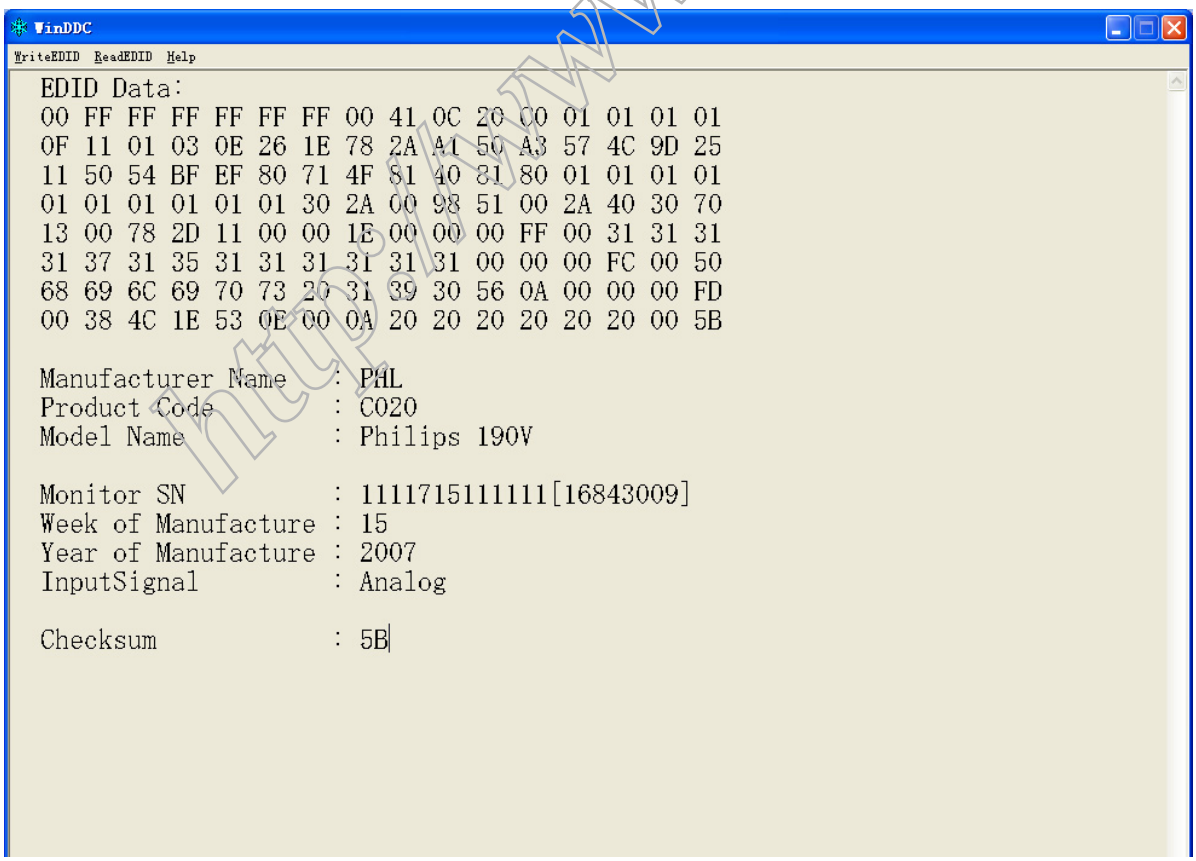
4. Take analog DDC write for example, as follow



a. Double-click WinDDC.exe，appear as follow Figs：



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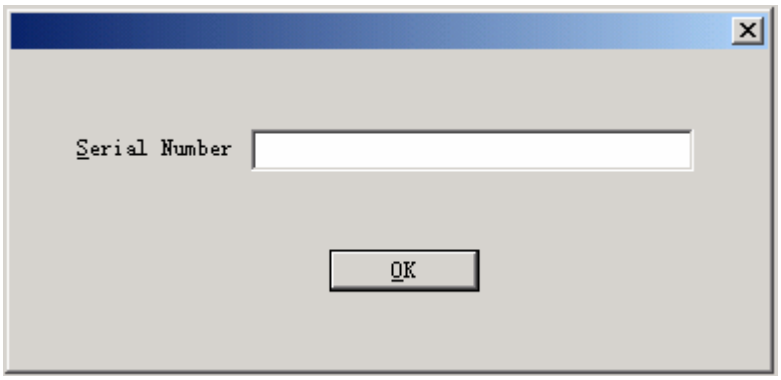
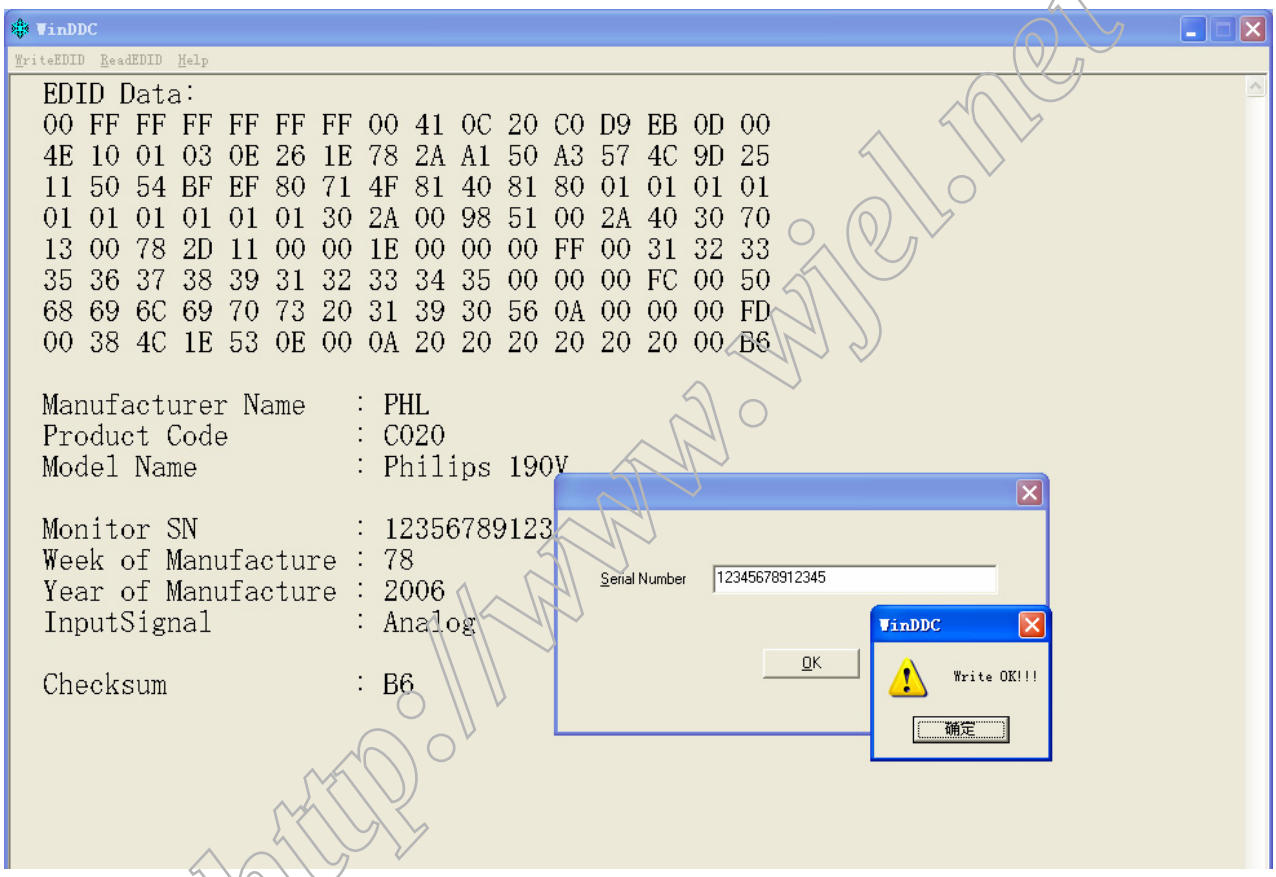
b. Click WriteEDID.



c. Key 14 numbers in the Serial Number blank, then click “OK”. Now analog DDC Write completes, as follow.



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190V9 EDID

Analog

128 bytes EDID Data (Hex):

```
        00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15

0:      00 FF FF FF FF FF FF 00 41 0C 20 C0 01 01 01 01
16:     0C 0B 01 03 0E 26 1E 78 2A A1 50 A3 57 4C 9D 25
32:     11 50 54 BF EF 80 71 4F 81 40 81 80 01 01 01 01
48:     01 01 01 01 01 01 30 2A 00 98 51 00 2A 40 30 70
64:     13 00 78 2D 11 00 00 1E 00 00 00 FF 00 31 33 32
80:     33 31 31 32 33 31 32 33 31 32 00 00 00 FC 00 50
96:     68 69 6C 69 70 73 20 31 39 30 56 0A 00 00 00 FD
112:    00 38 4C 1E 53 0E 00 0A 20 20 20 20 20 20 00 E9
```

Decoded EDID data

```
        <---Header--->

                Header: 00 FF FF FF FF FF FF 00

        <-x-Header-x->

        <---Vendor/Product Identification--->
                ID Manufacturer Name:       PHL
                ID Product Code:            C020
                ID Serial Number:           01010101
                Week of Manufacture:        12
                Year of Manufacture:        2001
        <-x-Vendor/Product Identification-x->

        <---EDID Structure Version/Revision--->
                EDID Version#:              01
                EDID Revision#:             03
        <-x-EDID Structure Version/Revision-x->

        <---Basic Display Parameters/Features--->
                Video i/p definition:       Analog
                Signal Level Standard:      0.700V/0.300V(0.700Vpp)
                Setup:                      Blank-to-Black not expected
                Separate Sync Support:      Yes
                Composite Sync Support:     Yes
                Sync. on green video supported:Yes
                Serration of the Vsync.Pulse is not required.
                Max. H. Image Size :        38cm.
                Max. V. Image Size :        30cm.
                Display Gamma:              2.2
                DPMS Features, Active off:          Yes.
                Display Type:    R/G/B color display.
                Preferred Timing Mode:          Yes.
        <---Basic Display Parameters/Features--->

        <---Color Characteristics--->
                Red x:              0.6386718750
                Red y:              0.3417968750
                Green x:            0.2968750000
                Green y:            0.6142578125
                Blue x:             0.1455078125
                Blue y:             0.0673828125
                White x:            0.3125000000
```

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White y: 0.3291015625
<-x-Color Characteristics-x->

<---Established Timings--->
Established Timings 1: BF
-720x400 @70Hz VGA,IBM
-640x480 @60Hz VGA,IBM
-640x480 @67Hz Apple,Mac II
-640x480 @72Hz VESA
-640x480 @75Hz VESA
-800x600 @56Hz VESA
-800x600 @60Hz VESA
Established Timings 2: EF
-800x600 @72Hz VESA
-800x600 @75Hz VESA
-832x624 @75Hz Apple,Mac II
-1024x768 @60Hz VESA
-1024x768 @70Hz VESA
-1024x768 @75Hz VESA
-1280x1024 @75Hz VESA
Established Timings 3: 80
-1152x870 @75Hz Apple,Mac II
<-x-Established Timings-x->

<---Standard Timing Identification--->
-1152x864@75
-1280x960@60
-1280x1024 @60
<-x-Standard Timing Identification-x->

<---Detailed Timing Descriptions--->
Detailed Timing: 1280x1024 @ 60Hz.
<-x-Detailed Timing Descriptions-x->

<---Detailed Timing Descriptions--->
Detailed Timing: FF (Monitor SN) '132311231231'
Detailed Timing: FC (Monitor Name) 'Philips 190V'
Detailed Timing: FD (Monitor limits)
Min. V. rate: 56Hz
Max. V. rate: 76Hz
Min. H. rate: 30KHz
Max. H. rate: 83KHz
Max. Pixel Clock: 140MHz
<-x-Detailed Timing Descriptions-x->

Extension Flag: 00
Checksum: E9

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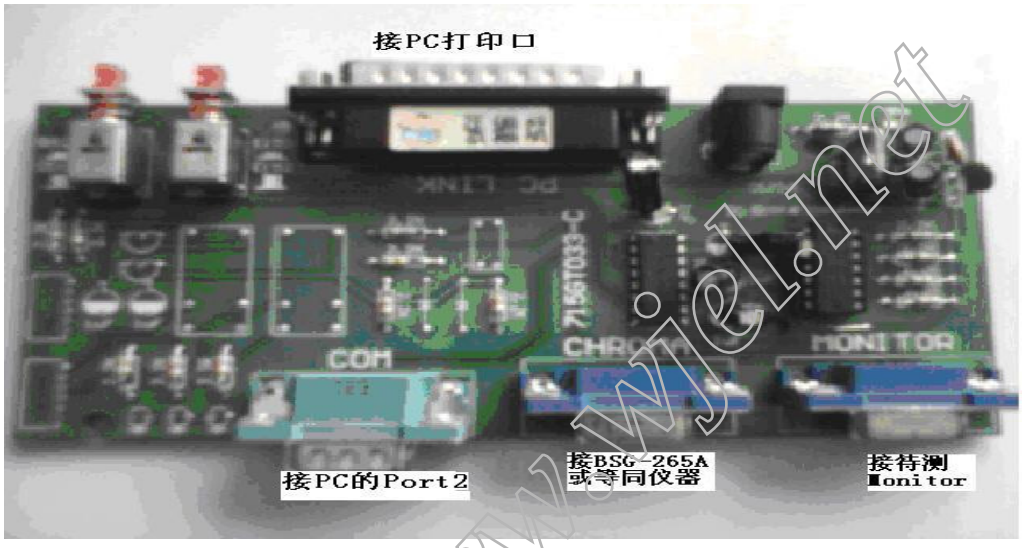
15. White Balance, Luminance Adjustment

1. Apparatuses and program: analyzer CA-210, PC, tool, FGA adjustment program (PHILIPS170V9.DDCI), Pattern generator.
2. Equipment installation:
   a. Connect analyzer CA-210 to PC by USB connector, install drive program CA-SDK Ver4.00 for CA-210 and restart PC after finish installing.
   b. Install Port95NT drive program, set PC printer connector mode as ECP mode and restart PC after finish installing.
   c. Connect tools as follow:

   (Note: It is not necessary to connect Port2)



3. Adjustment

Preparation before adjustment:

(1) Monitor should be warmed up for more than half an hour.

(2) Make sure that the tools are connected right and drive programs have been installed OK.

Adjustment process:

(1) Press the power of CA-210, shut off the lens, press 0-Cal and open the lens after analyzer reset.

(2) Start white balance adjustment program, select the right parameter according with the program and click OK.

(3) Make sure that the lens of CA-210 aims at the center of the screen, then click Start and start adjusting.

(4) After finish adjusting, the adjustment program displays pass, and the Start Button is changed to Next, which means you can adjust another monitor.

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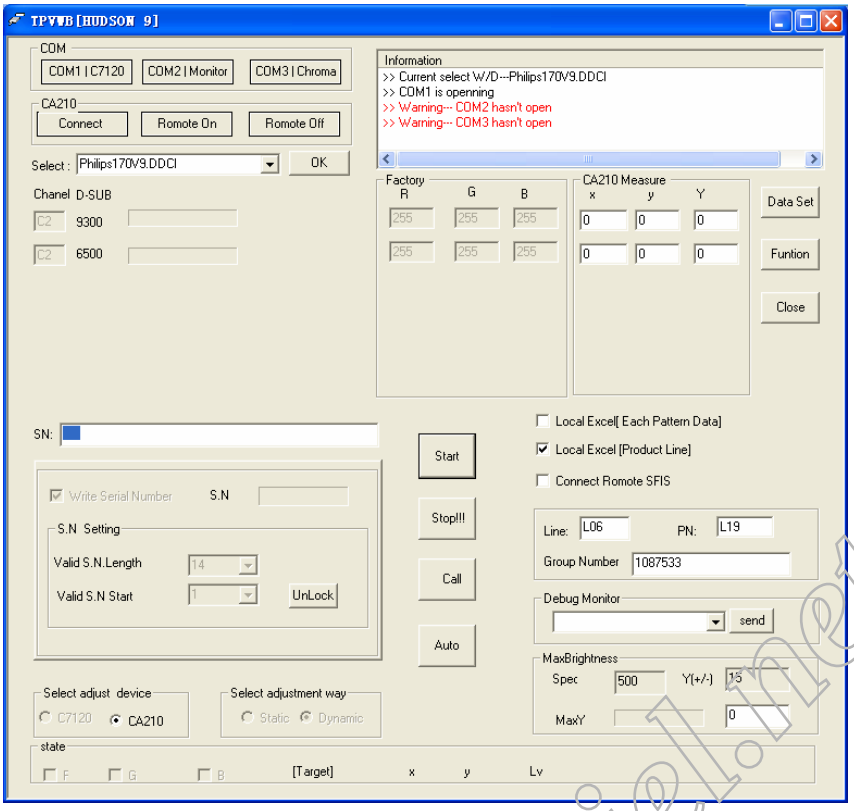

4. Color Temp confirmation

Connect the signal to the monitor, the monitor display white-picture, use CA-210 to measure the Color Temp of the screen center and select the OSD to make sure whether the Color Temps accord with the SPEC.

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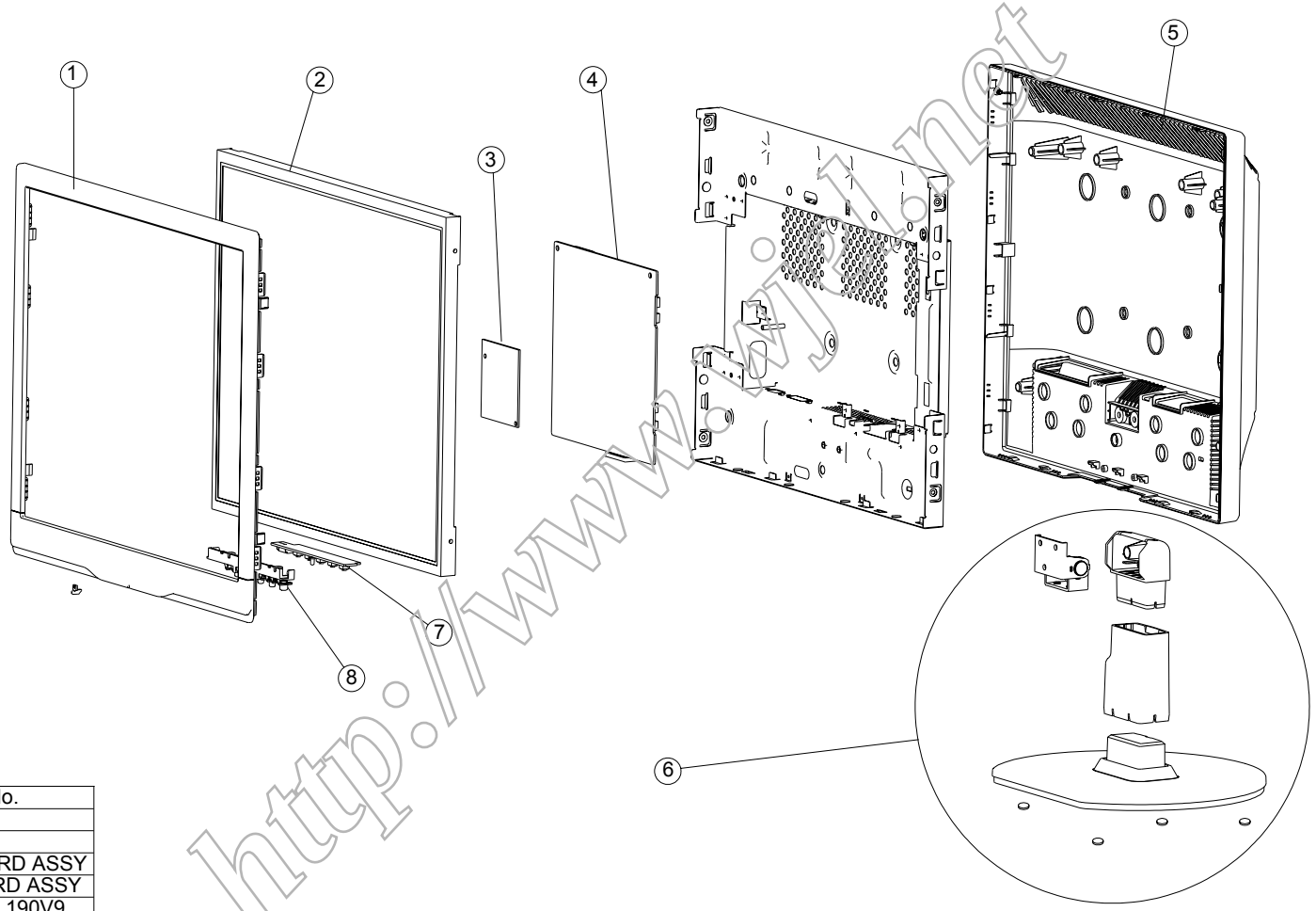
16. Monitor Exploded View

190V9



Item	Part No.
1	BEZEL
2	PANEL
3	SCALAR BOARD ASSY
4	POWER BOARD ASSY
5	REAR COVER 190V9
6	STAND_BASE ASS'Y
7	KEY BOARD ASSY
8	KEY PAD

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17. Recommended & Spare Parts List

190V9FB/97(1)

Item	Location	Philips 12NC	PCM Codes	Description
1	FQ106	996510017730	Q34G0368ADTE1B0130	BEZEL_190V
2	E750	996510016251	750GLG190E8G23N000	PANEL LM190E08-TLG2 GZ LGD
2	E750	996510016074	750GLG190E8G43N000	PANEL LM190E08-TLG4 GZ LGD
2	E750	996510016443	750GLH90N3A12N	PANEL HSD190MEN3-A00 NJ HSD
2	E750	996510016075	750GLH90N3A42N	PANEL HSD190MEN3 A03 NJ HSD
2	E750	996510015559	750GLG190E8G23M0PH	PANEL LM190E08-TLG2 GZ LPL
2	E750	996510016533	750GLG190E8G43M0PH	PANEL LM190E08-TLG4 GZ LPL
2	E750	996510015570	750GLH90N3A12M000F	PANEL HSD190MEN3-A00 NJ HSD
2	E750	996510016534	750GLH90N3A42M000F	PANEL HSD190MNE3 A03 NJ HSD
3	FQ002	996510015566	CBPC7GM5PHQ1	SCALER BOARD ASSY(LPL)
3	FQ002B	996510015571	CBPC7HM5PHQ1	SCALER BOARD ASSY(HSD)
4	FQ003	996510014911	PWPC7941MQAJ	POWER BOARD ASSY
5	FQ105	996510015560	Q34G0270ADT 2B0100	REAR COVER_190V9
6	FQ103	996510015562	705GQ834047	STAND BASE ASS'Y
7	FQ004	996510015568	KEPC8QV9	KEY BOARD ASSY
8	FQ405	996510014814	Q33G0170ADT 1L	KEY PAD
	E08902	996510014810	089G 725HAA DB	D-SUB(LPL)
	E08902	996510014809	089G 725CAA DB	D-SUB(HSD)
	E08907	996510015558	089G179E30N501	FFC CABLE(LPL)
	E08907	996510015569	089G179J30N501	FFC CABLE(HSD)
	E08901	996510015663	089G404A15N IS	POWER CORD
	FQ203	996510010007	P45G 88609 37 R	EPE BAG
	FQ201	996520034298	Q40G 19N81326A	RATING LABEL
	FQ205	996510016252	705GQ8CS006	CUSHION ASSY
	FQ202	996510016254	Q44G9114813 1A	19 LCD CARTON
	FQ204	996510016253	Q70G900081312A	CD MANUAL
	FQ108	996510015563	A34G0531ADT 1B0100	STAND
	FQ109	996510015564	A34G0753ADT 1B0133	BASE
	FQ110	996510015565	Q37G0075011	HINGE
	U401	996510014825	056G 562557	IC TSUM1PFR-LF
	U404	996510005697	056G 563 52	IC AP1117D33LA TO252-3L ATC
	U102	996510014826	056G 662 13	IC AZC099-04S SOT23-6L
	U103	996510014826	056G 662 13	IC AZC099-04S SOT23-6L
	U403	996500037783	056G1133 56	M24C16-WMN6TP
	U402	996510015567	705GQ756217	MCU ASS'Y(LPL)

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	U402	996510015572	705GQ756218	MCU ASS'Y(HSD)
	IC903	996500036055	056G 139 3A	IC PC123Y22FZ0F
	IC901	996510014843	056G 379 98	IC LD7552DPS SOP-8
	IC801	996500036059	056G 608 10	IC OZ9938GN-B SOIC-16
	IC904	996510002780	056G 158 10 T	IC AZ431AZ-AE1 TO-92 BY AAC
	PT801	996510014840	S80GL19T32V	TRANSFORMER ASSY
	PT801	996510014836	080GL19T 32 DN	X'FMR 785mH TK.2027R.101
	T901	996510014837	080GL22T 3 N	X'FMR 510uH YUVA-822
	F903	996510013724	084G 56 4 B	FUSE 4A 250V
	F901	996510013724	084G 56 4 B	FUSE 4A 250V
	X401	996510014824	093G 22 53 J	14.31818MHZ/32PF/49US

Service Kit

Description	Part No.	Philips 12NC	Remark
DDC KIT	715L2005C2	9965 000 43197	FOR ALL MODEL
OSD SN KIT	715GT033 C	9965 000 43252	FOR ALL MODEL
NOVATEK ISP KIT	715LT035A	9965 000 43198	FOR ALL HUDSON 7 FOR 170A8, 190B8, 150S8, 170S8,190S8, 170V8,190V8
MSTAR ISP KIT	715GT039 A	996510010027	200CW8, 190VW9, 170V9, 190V9
REALTEK ISP KIT	715GT039 A	996510010027	170CW8

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18. Different Parts List

Diversity of 190V9FB/62(1) compared with 190V9FB/97(1)						
Location	190V9FB/62(1)			190V9FB/97(1)		
	Philips 12NC	PCM Codes	Description	Philips 12NC	PCM Codes	Description
FQ205		705GQ834006	CUSHION ASSY	996510016252	705GQ8CS006	CUSHION ASSY

Diversity of 190V9FB/27(1) compared with 190V9FB/97(1)						
Location	190V9FB/27(1)			190V9FB/97(1)		
	Philips 12NC	PCM Codes	Description	Philips 12NC	PCM Codes	Description
E08901		089G402A15N CX	POWER CORD	996510015663	089G404A15N IS	POWER CORD
FQ201		Q40G 19N81327A	RATING LABEL	996520034298	Q40G 19N81326A	RATING LABEL

Diversity of 190V9FB/05(1) compared with 190V9FB/97(1)						
Location	190V9FB/05(1)			190V9FB/97(1)		
	Philips 12NC	PCM Codes	Description	Philips 12NC	PCM Codes	Description
E08901		089G410A15N IS	POWER CORD	996510015663	089G404A15N IS	POWER CORD

The BOM of 190V9FB/00(1) is the same as 190V9FB/97(1).

Diversity of 190V9FB/94 (1) compared with 190V9FB/97(1)						
Location	190V9FB/94(1)			190V9FB/97(1)		
	Philips 12NC	PCM Codes	Description	Philips 12NC	PCM Codes	Description
FQ301	996510015866	089G417A15N IS	POWER CORD	996510015663	089G404A15N IS	POWER CORD

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Diversity of 190V9FB/93(1) compared with 190V9FB/97(1)						
Location	190V9FB/93(1)			190V9FB/97(1)		
	Philips 12NC	PCM Codes	Description	Philips 12NC	PCM Codes	Description
FQ301		089G414A15N IS	POWER CORD	996510015663	089G404A15N IS	POWER CORD
FQ106		Q34G0368ADTF1B0130	BEZEL_190V	996510017730	Q34G0368ADTE1B0130	BEZEL_190V
FQ202		Q44G9114813 2A	19 LCD CARTON	996510016254	Q44G9114813 1A	19 LCD CARTON
E750B	996510016443	750GLH90N3A12N	HSD190MEN3-A00 NJ HSD	996510015570	750GLH90N3A12M000F	HSD190MEN3-A00 NJ HSD
E750B	996510016075	750GLH90N3A42N	HSD190MEN3 A03 NJ HSD	996510016534	750GLH90N3A42M000F	HSD190MNE3-A03 NJ HSD
FQ206		Q41G780081370A	QSG			

Diversity of 190V9FB/93(2) compared with 190V9FB/97(1)						
Location	190V9FB/93(2)			190V9FB/97(1)		
	Philips 12NC	PCM Codes	Description	Philips 12NC	PCM Codes	Description
FQ002	996510015571	CBPC7HM5PHQ1	SCALER BOARD ASSY(HSD)	996510015566	CBPC7GM5PHQ1	SCALER BOARD ASSY(LPL)
F901	996510006276	084G 56 4W	FUSE 4.0A 250V	996510013724	084G 56 4 B	FUSE 4A 250V
F903	996510006276	084G 56 4W	FUSE 4.0A 250V	996510013724	084G 56 4 B	FUSE 4A 250V
T901	996510014841	S80GL22T3V	XFMR POWER 490uH TPV-PT	996510014838	080GL22T 3 N	X'FMR 510uH YUVA-822
T901	996510014837	080GL22T 3 L	XFMR 510uH PT-009287			
FQ301		089G414A15N IS	POWER CORD	996510015663	089G404A15N IS	POWER CORD
FQ202		Q44G9114813 2A	19 LCD CARTON	996510016254	Q44G9114813 1A	19 LCD CARTON
FQ206		Q41G780081370A	QSG			

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Diversity of 190V9FB/94(2) compared with 190V9FB/97(1)						
Location	190V9FB/94(2)			190V9FB/97(1)		
	Philips 12NC	PCM Codes	Description	Philips 12NC	PCM Codes	Description
F901	996510006276	084G 56 4W	FUSE 4.0A 250V	996510013724	084G 56 4 B	FUSE 4A 250V
F903	996510006276	084G 56 4W	FUSE 4.0A 250V	996510013724	084G 56 4 B	FUSE 4A 250V
T901	996510014841	S80GL22T3V	XFMR POWER 490uH TPV-PT	996510014838	080GL22T 3 N	X'FMR 510uH YUVA-822
T901	996510014837	080GL22T 3 L	XFMR 510uH PT-009287			

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19. General Product Specification

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1. FOREWORD

This specification describes a 19" SXGA multi-scan color TFT LCD monitor with maximum resolution up to 1280 x 1024 /75 Hz non-interlaced. All optical characteristics (including WHITE-D, Brightness, and so on) are determined according to panel specification after warming up approximate 30 minutes that brightness stability is optimal, and follow strictly after panel specification.

2. PRODUCT PROFILE

This display monitor unit is a color display monitor enclosed in PHILIPS styling cabinet which has an integrated tilt base.

2.1 LCD

Priority : 1. LPL/HSD

Type : LPL LM190E08-TLG2/TLG4(TN)

Supplier offer the Panel specification.

Panel incoming specification: Follow Philips' specification.

LPL

Type NR.	: LM190E08-TLG2/TLG4 (TN)
Resolution	: 1280x1024 (SXGA)
Outside dimensions	: 396.0(H)x324.0(V)x15.5(D)mm
Pitch (mm)	: 0.294 mm x 0.294 mm
Color pixel arrangement	: RGB vertical stripes
Display surface	: low reflection, antiglare with hard coating
Color depth	: 16.7 M colors (6 bits + Hi-FRC)
Backlight	: CCFL edge light system
Active area(WxH)	: 19.0" inches(481.9mm) diagonal
View angle (CR>10)	:170/160(typ) for H/V
Contrast ratio	: 800:1(typ)
White luminance	: 300 nits(typ)
Color gamut	: 72%
Gate IC	: COF type/4ea
Source IC	: Lusem/Novatek
Response time	: 5 ms

HSD

Type NR.: HSD 190MEN3-A00/03 (TN)

Resolution	: 1280x1024 (SXGA)
Outside dimensions	: 396*324*16.5mm
Pitch (mm)	: 0.294 mm x 0.294 mm
Color pixel arrangement	: RGB vertical stripes
Display surface	: low reflection, antiglare with hard coating
Color depth	: 16.7 M colors (6 bits + Hi-FRC)
Backlight	: CCFL edge light system
Active area(WxH)	: 376.32(W)*301.056(H)
View angle (CR>10)	: 170/160 (typ) for H/V
Contrast ratio	: 1000:1 (typ)
White luminance	: 300 nit (typ)

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Color gamut : 72%

Gate IC : Novatek

Source IC : Novatek

Response time : 5 ms

2.2 Scanning frequencies

Hor. : 30 – 83 K Hz

Ver.: 56 - 76 Hz

Video dot rate: 165 MHz (140MHz for EDID)

Power input: 90-264 V AC, 50/60 ± 2 Hz

Power consumption : : 36 W typical

Functions:

D-SUB analog R/G/B separate inputs, H/V sync separated, Composite (H+V) TTL level, SOG sync

2.3 Ambient temperature: 0 °C - 40°C

3. Electrical characteristics

3.1 Interface signals

1). D-Sub Analog

Input signal : Video, Hsync., Vsync

Video : 0.7 Vp-p, input impedance, 75 ohm @DC

Sync. : Separate sync TTL level , input impedance 2.2k ohm terminate

Hsync Positive/Negative

Vsync Positive/Negative

Composite sync TTL level, input impedance 2.2k ohm terminate (Positive/Negative)

Sync on green video 0.3 Vp-p Negative (Video 0.7 Vp-p Positive)

2). USB PLUG 2.0 (Not required in this product)

Input signal: Upstream input (VBUS, D+, D-, GND) via USB-B receptacle.

Output signal: Downstream output (VBUS, D+, D-, GND) through USB-A receptacle

3.2 Interface

3.2.1 D-Sub Cable

Length : 1.5 M +/- 50 mm

Connector type : D-Sub male with DDC2B pin assignments.

Blue connector thumb-operated jack screws

Pin assignments:

Pin No.	Signal
1	Red
2	Green/ SOG
3	Blue
4	Sense (GND)
5	Cable Detect (GND)
6	Red GND
7	Green GND
8	Blue GND
9	DDC +5V

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10	Logic GND
11	Sense (GND)
12	Bi-directional data
13	H/H+V sync
14	V-sync
15	Data clock

3.3 Timing requirement

Factory Preset mode definition :

1. Perfect FOS while presenting all required timings.
2. Required timings need to be specified in User's Manual

User mode

1. It can be showed visibly(not over scalar or Panel spec.)
2. It needs to reserve the 20 timings space in memory size.

3.3.1 Mode storing capacity

Factory preset modes : 9

User modes : 20

Note: 1. Screen displays perfect picture at 9 factory-preset modes.

2. Screen displays visible picture with OSD warning when input modes are the 20 user modes.

3.3.2 Factory preset modes (9 modes)

Factory modes and preset modes are defined in the enclosed timing table file.

Resolution			Pixel Rate (MHz)	Horizontal (KHz)	Vertical (Hz)	V_Total (Line)	Polarity (H / V)
DOS		640x350/70	25.18	31.47	70.09	449	p / n
DOS		720x400/70	28.32	31.47	70.09	449	n / p
DMT	4:3	640x480/60	25.18	31.47	59.94	525	n / n
MAC		640x480/67	30.24	35.00	66.67	525	n / n
DMT	4:3	640x480/72	31.50	37.86	72.81	520	n / n
DMT	4:3	640x480/75	31.50	37.50	75.00	500	n / n
DMT	4:3	640x480/85	36.00	43.27	85.01	509	n / n
DMT	4:3	800x600/56	36.00	35.16	56.25	625	p / p
DMT	4:3	800x600/60	40.00	37.88	60.32	628	p / p
DMT	4:3	800x600/72	50.00	48.08	72.19	666	p / p
DMT	4:3	800x600/75	49.50	46.88	75.00	625	p / p
DMT	4:3	800x600/85	56.25	53.67	85.06	631	p / p
MAC		832x624/75	57.28	47.73	74.55	667	n / n
DMT	4:3	1024x768/60	65.00	48.36	60.00	806	n / n
DMT	4:3	1024x768/70	75.00	56.48	70.07	806	n / n
DMT	4:3	1024x768/75	78.75	60.02	75.03	800	p / p
IBM		1024x768/76	83.10	61.10	76.00	803	p / p

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DMT		1024x768/85	94.50	68.68	85.00	808	p / p
		1152x864/60	79.90	54.00	60.00	900	p / p
		1152x864/70	94.50	63.90	70.00	912	p / p
DMT		1152x864/75	108.00	67.50	75.00	900	p / p
MAC		1152x870/75	100.00	68.68	75.06	915	n / n
SUN		1152x900/66	92.94	61.80	65.95	937	p / p
SUN		1152x900/76	105.56	71.71	76.05	943	p / p
CVT	16:9	1280x720/60	74.50	44.77	59.86	748	n / p
CVT	16:9	1280x720/75	95.75	56.46	74.78	755	n / p
CVT	16:9	1280x720/85	110.25	64.40	84.85	759	n / p
CVT	15:9	1280x768/60	79.50	47.78	59.87	798	n / p
CVT	15:9	1280x768/75	102.25	60.29	74.89	805	n / p
CVT	15:9	1280x768/85	117.50	68.63	84.84	809	n / p
CVT		1280x800/60	83.50	49.70	59.81	831	n / p
CVT		1280x800/75	106.50	62.80	74.93	838	n / p
CVT		1280x800/85	122.50	71.55	84.88	843	n / p
DMT	4:3	1280x960/60	108.00	60.00	60.00	1000	p / p
CVT	4:3	1280x960/75	130.00	75.23	74.86	1005	n / p
DMT	4:3	1280x960/85	148.50	85.94	85.00	1011	p / p
DMT	5:4	1280x1024/60	108.00	63.89	60.02	1066	p / p
SUN	5:4	1280x1024/66	117.00	71.70	67.00	1067	p / p
DOS	5:4	1280x1024/72	130.22	76.00	72.00	1064	p / p
DMT	5:4	1280x1024/75	135.00	79.98	75.03	1066	p / p
SUN	5:4	1280x1024/76	138.01	81.10	76.00	1066	n / n
DMT	5:4	1280x1024/85	157.50	91.15	85.02	1072	p / p
DMT	16:9	1360x768/60	85.50	47.71	60.02	795	p / p
CVT	16:9	1360x768/75	109.00	60.29	74.89	805	n / p
CVT		1440x900/60_RB	88.75	55.47	59.90	926	p / n
CVT		1440x900/60	106.50	55.94	59.89	934	n / p
CVT		1440x900/75	136.75	70.64	74.98	942	n / p
CVT		1440x900/85	157.00	80.43	84.84	948	n / p
		1600x1000/60					
DMT	4:3	1600x1200/60	162.00	75.00	60.00	1250	p / p
CVT	16:10	1680x1050/60_RB	119.00	64.67	59.88	1080	p / n
CVT	16:10	1680x1050/60	146.25	65.29	59.95	1089	n / p
CVT	16:9	1920x1080/60_RB	138.50	66.59	59.93	1111	p / n
CVT	16:10	1920x1200/60_RB	154.00	74.04	59.95	1235	p / n

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3.3.3 Software control functions via OSD / control adjustable functions:

Any deviation, then refer to PVT Exit sample.

Please refer to following Hudson8 OSD definitions

Level 1	Level 2	Level 3	Default
Picture	Brightness	(0~100)	100
	Contrast	(0~100)	50
Color	Color Temp.	(5000K,6500K,7500K,8200K,9300K,11500K)	6500K
	sRGB		
	User Define	(Red:0~100)	100
		(Green:0~100)	100
		(Blue:0~100)	100
Language	English		(English)
	Espanol		
	Francais		
	Deutsch		
	Italiano		
	Portugues		
	Russia		
	S.Chinese		
OSD Setting	Horizontal	(0~100)	50
	Vertical	(0~100)	50
	Transparency	(Off, 1, 2, 3, 4)	Off
	OSD Time out	(5, 10, 20, 30, 60)	20
Setup	Phase	(0~100)	
	Clock	(0~100)	
	H.Position	(0~100)	
	V.Position	(0~100)	
	Reset	(Yes, No)	No
	Resolution Notification	(On, Off)	**Off**
	Information		

Power On Logo : Power On → show up Philips logo 3 seconds → change to input signal .

3.4 Horizontal scanning

Sync polarity : Positive or Negative

Scanning frequency : **30 – 83 K Hz**

3.5 Vertical scanning

Sync polarity : Positive or Negative

Scanning frequency : **56 - 76 Hz**

3.6 Power input connection

Power cord length : 1.5 M

Power cord type : 3 leads power cord with protective earth plug.

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3.7 Power management

The monitor must comply with the Microsoft on Now specification, and meet EPA requirements.

Mode	HSYNC	VSYNC	Video	Power-cons.	Indication	Rec. time
Power-On	On	On	active	36W Typ.	Green LED	--
off	Off	Off	blanked	< 1W	Amber LED	< 3 s
DC Power Off			N/A	< 1W	LED Off	

3.8 VGA Display identification

In accordance with VESA Display Channel Standard Ver.1.0 and DDC 2B capability

3.10 DDC/ CI Support

In accordance with VESA DDC/CI and MCCS ver.2.0, the monitor should be workable with Protrait Display Tune at least.

3.10 EDID

Data for EDID & .inf file

Data for EDID & .inf file

1	User visible strings on .inf file	Philips 190V (19inch LCD MONITOR 190V9)
2	Manufacturer ID (EDID data)	PHL
3	Product ID, "xxxx" 4 codes	MSB(byte 12): C0
		LSB (byte 11): 20
4	maximum resolution	1280x1024
5	Horizontal Frequency Range	30~83 KHz
6	Vertical Frequency Range	56~76Hz
7	Monitor Name (13 characters max.)	Philips 190V

3.11 Hot-key definition

Item	Key	Key press time	OSD Timeout	OSD Message
Monitor Controls Lock	[Menu]	6 sec	5 sec	Monitor Controls Locked Monitor Controls Unlocked (default)
Factory Mode	[AUTO]+[Menu]+[Power]			
DDC/CI On/OFF for VISTA	[MENU]+[DOWN]	5 sec	5 sec	DDC/CI On (default) DDC/CI Off

If any deviation, then refer to PVT Exit sample.

3.12 Dynamic contrast

Smart Contrast is a kind of dynamic backlight control.

This function changes the panel backlight dynamically according to the frame brightness histogram.

The contrast ratio is 3000:1 (typical).

4. Visual characteristics

4.1 Test conditions

Unless otherwise specified, this specification is defined under the following conditions.

(1) Input signal : As defined before, 1280 x 1024

non-interlaced mode (1280 x 1024@75Hz),

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signal sources must have 75 ohm output impedance.

(2) Luminance setting : controls to be set to 300 nits (typical) with
full screen 100 % duty cycle white signal

(3) Warm up: more than 30 minutes after power on with signal supplied.

(4) Ambient light: 400 -- 600 lux.

(5) Ambient temperature: 20 ± 5 °C

4.2 Brightness

Just follow panel specification.

4.3 Image size

Actual display size: **376.32(H)*301.056(V)**

4.4 Brightness uniformity

Set contrast at 100% and turn the brightness at 100%

Apply the Fig 1, it should comply with the following formula:

$$\frac{B\_min}{B\_max} \times 100\% > 75\%$$

Where B_max =Maximum brightness, B_min = Minimum brightness

4.5 Check Cross talk (S)

Apply Pattern 2. Set contrast and brightness at 100 %.

Measure YA. Then output Pattern 3 and measure YB.

the cross talk value :

$$\frac{ABS(YA - YB)}{YA} \times 100\% < 1.5\%$$

4.6 White color adjustment

There are three factory preset white color 9300K, 6500 and sRGB Align by FGA function.

Apply full gray64 pattern, with brightness in 100 % position and the contrast control at 50 % position.

The 1931 CIE Chromaticity (color triangle) diagram (x , y) coordinate for the screen center should be:

Product specification

CIE coordinates	(x,y)	
11500K	x = 0.272 ± 0.02 y = 0.283 ± 0.02	
9300K	x = 0.283 ± 0.02 y = 0.297 ± 0.02	
8200K	x = 0.292 ± 0.02 y = 0.307 ± 0.02	
7500K	x = 0.299 ± 0.02 y = 0.315 ± 0.02	

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6500K/sRGB	x = 0.313 ± 0.02 y = 0.329 ± 0.02	
sRGB	x = 0.313 ± 0.02 y = 0.329 ± 0.02	
5000K	x = 0.346 ± 0.02 y = 0.359 ± 0.02	

Production alignement specification

CIE coordinates	(x,y)	
11500K	x = 0.272 ± 0.005 y = 0.283 ± 0.005	
9300K	x = 0.283 ± 0.005 y = 0.297 ± 0.005	
8200K	x = 0.292 ± 0.005 y = 0.307 ± 0.005	
7500K	x = 0.299 ± 0.005 y = 0.315 ± 0.005	
6500K/sRGB	x = 0.313 ± 0.005 y = 0.329 ± 0.005	
sRGB	x = 0.313 ± 0.005 y = 0.329 ± 0.005	
5000K	x = 0.346 ± 0.005 y = 0.359 ± 0.005	

Quality Inspection specification:

CIE coordinates	(x,y)	
9300K	x = 0.283 ± 0.015 y = 0.297 ± 0.015	
6500K/sRGB	x = 0.313 ± 0.015 y = 0.329 ± 0.015	
sRGB	x = 0.313 ± 0.015 y = 0.329 ± 0.015	

5. Mechanical characteristics

5.1 Cosmetic - Philips ID

5.2 Mechanical data files - ProE files required

5.3 Location of Philips logo - Per Philips make-up sheet

5.4 Gap between panel and front bezel < 1.4mm (typ)

5.5 Location of Control icons - Per Philips Graphic sheet

5.6 Color for resin/paint - Per Philips make-up sheet

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5.7 Resins

- RoHS required
- WEEE required.
- Resin type/selection refer to Project Book Section 7.2 Plastic material.

5.8 If paint is used

- RoHS required
- WEEE require
- If new painting type need to implement, refer to UN-D 1235.

5.9 Plastic mold tooling

- Tooling to be designed to minimize cosmetic defects induced by molding process (sink, blush, weld lines, gate marks, ejector marks, etc.). Refer to “TYV61-90007”.
- Painting to cover up cosmetic defects due to molding is strongly discouraged.

5.10 Plastics flammability

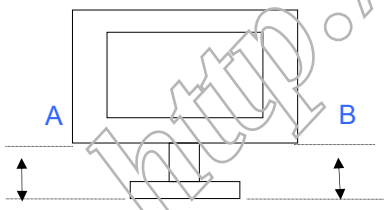
- All Plastics to be Flame Retardant.
- Base / Pedestal to be Flame Retardant UL 94-HB.
- All major plastic parts (bezel, back cover, base) need to be molded from same resin.
- Plastic resin type selection should be referred to “TY R83-2-9002-1”.

5.11 Texture/Glossing of housing

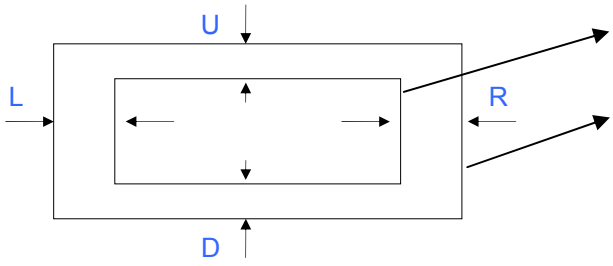
- The texture area and texture no should follow Philips make-up sheet.
- The exterior surfaces shall have a uniform texture.
- Philips must approve the mold texturing.
- Detail document for texture refer to “UN-D249”, “UN-D 600”.

5.12 Tilt and swivel base

- Tilt angle : -5 ° +2/- 0 ° (forward)
  +20 °+0/-2 ° (backward)
- Tilt for left and right:
  | A-B | ≤4.0MM



- Black side and cut side：



1. Visual area

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H：｜L-R｜≤1. 5 ㎜
V：｜U-D｜≤1. 5 ㎜

2.Black side on the left and right is symmetrical, not cut side.

- Gap between bezel and rear cover 0.4 mm（Typ.）
- Step between bezel and rear cover

  Left, right and top : ≤0.6mm Bottom and corner: ≤1.1mm
- "Wobble", "Twist", etc (front to back or side to side)

  Whole monitor set shall retain stability within a short time after the applied external force disapear. 20NT , 6secs（typ.） back to stable.

5.13 Kensington Lock

- Must meet Kensington_slot.spec “TYE-M0004”.

5.14 Label

- Carton label should follow Philips requirement.
- Regulatory label follow TPV OTS.
- China RoHS label
- Detail document refer to Philips Engineering Reference Book.

5.15 Product dimension / Weight (Refer to SHT 191)

- Unit dimension : 409(W)*407(H)*205(D)
- Packed unit dimension : 451(W)*490(D)*139(H)
- Net weight : 4.163Kg
- Gross weight : 5.268Kg.

5.16 Transportation

Transportation standards follow TPV standard.

5.16.1 Transportation packages

Packaging and wrapping shall be sufficient to protect the product against damage or loss during shipment from the supplier to the destination specified in the purchase order. All packaging materials are subject to test and evaluation per TPV standard. The cushion material shall be constructed using EPS material.

5.16.2 Transportation Test

A. Transportation test specification for all regions

Follow TPV standard

B. Pallet / Container loading

Transportation standards Follow TPV standard

- Air shipment -
- Sea container 20'(pallet/slip sheet)
- Sea container 40'(pallet/slip sheet)
- Sea container 40' High Cube (pallet/slip sheet)
- Land 53‘ MEGA Trailer (pallet/slip sheet)
- Land 53‘ MEGA Trailer per HQ (pallet/slip sheet)
- Truck shipment-

6. Environmental characteristics

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The following sections define the interference and susceptibility condition limits that might occur between external environment and the display device.

6.1 Susceptibility of display to external environment

Operating

- Temperature : 0 to 35 degree C
- Humidity : 80% max
- Altitude : 0-3658m
- Air pressure : 600-1100m BAR

Storage

- Temperature : -20 to 60 degree C
- Humidity : 95% max
- Altitude : 0-12192m
- Air pressure : 300-1100 mBAR

Note: recommend at 5 to 35°C, Humidity less than 60 %

6.2 Transportation tests

Refer to 5.15.2

6.3 Display disturbances from external environment

According to IEC 801-2 for ESD disturbances

6.4 Display disturbances to external environment

7. Reliability

7.1 Mean Time Between Failures

System MTBF (Including the LCD panel and CCFL) : 50,000 hrs

8. Quality assurance requirements

8.1 Acceptance test

According to MIL-STD-105D Control II level

AQL: 0.4 (major)

1.5 (minor)

(Please also refer to annual quality agreement)

Customer acceptance criteria: UAW/0376/00

9. Philips' Flat Panel Monitors Pixel Defect Policy

Philips' Flat Panel Monitors Pixel Defect Policy

BRIGHT DOT DEFECTS	**ACCEPTABLE LEVEL**		
MODEL	**190V9**		
1 lit sub-pixel	3		
2 adjacent lit sub-pixels	1		
3 adjacent lit sub-pixels (one white pixel)	0		
Distance between two bright dots	15mm		
Bright dot defects within 20 mm circle	0		
Total bright dot defects of all type	3		

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BLACK DOT DEFECTS	ACCEPTABLE LEVEL		
MODEL	190V9		
1 dark sub-pixel	5		
2 adjacent dark sub-pixels	2		
3 adjacent dark sub-pixels (one white pixel)	1		
Distance between two black dots	15mm		
Black dot defects within 20 mm circle*	1		
Total black dot defects of all type	5		

TOTAL DOT DEFECTS	ACCEPTABLE LEVEL		
MODEL	**190V9**		
Total bright or black dot defects of all type	5		

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Fig 1: Measurement locations of Brightness Uniformity

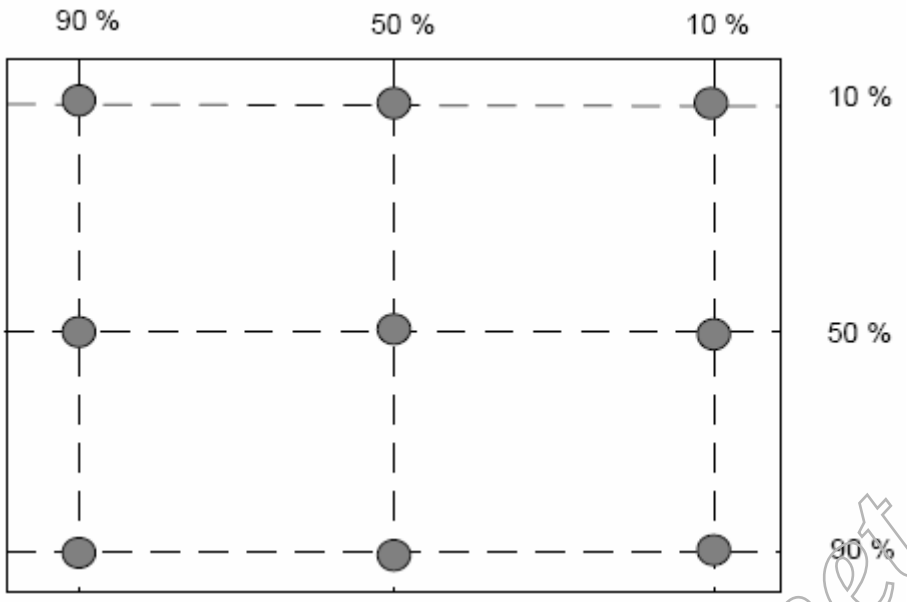


Fig 2: Cross talk pattern

Gray level 46 (64 Gray level)

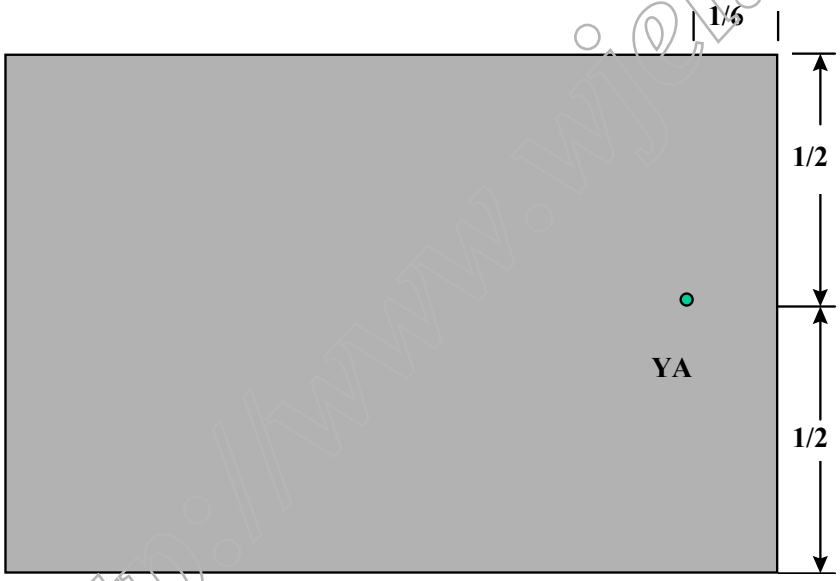
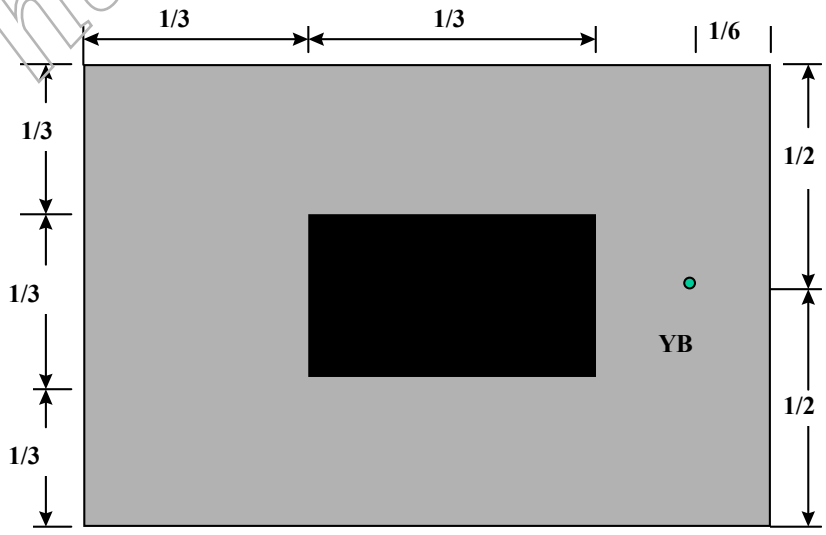


Fig 3: Cross talk Pattern

Center at Gray level 0 (Black)



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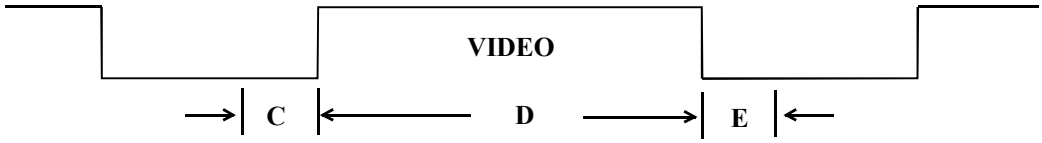
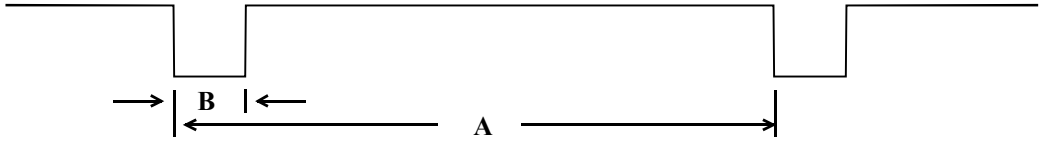
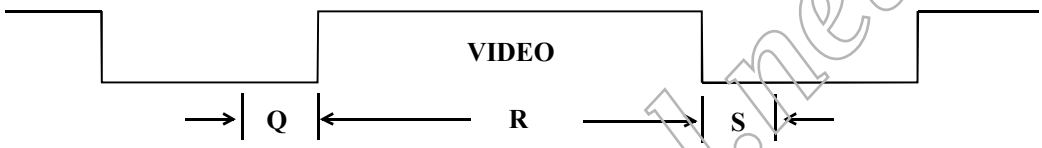
SEPARATE SYNC.



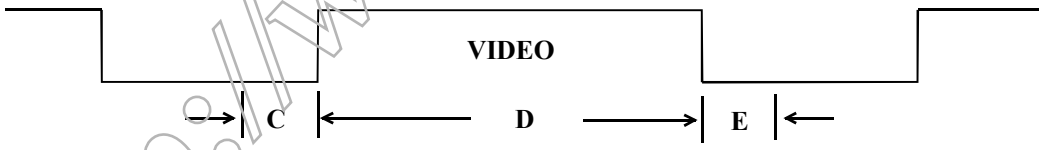
HORIZONTAL





VERTICAL

COMPOSITE SYNC.



HORIZONTAL

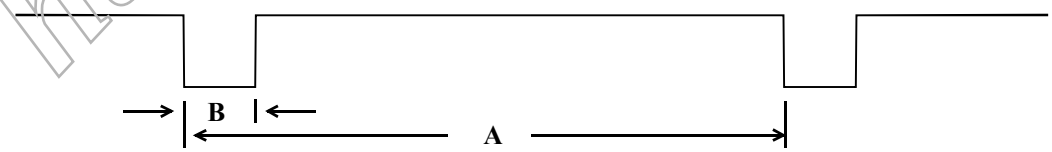


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FIG-4 TIMING CHART -1

10. REGULATORY COMPLIANCE

10.1 Worldwide Regulatory

Region (RSO)	Country (NSO)	Domain	Safety / EMC / Ergonomics / Standards	Documents	Reference Logo	Applicant	Mandatory	V-Line	Sample Q'ty	Remark
World wide	World wide	Sa	IEC60950-1:2001. Group and national differences of all countries listed in CB Bulletin No. 107A	CB Report, certificate		OEM	Yes	Yes		Manufacture and Applicant is Philips Maximum ambient temperature:40°C
Europe	EUROPE	Sa	European Low Voltage Directives 73/23/EEC and 93/68/EEC, 2004/108/EC	Declaration of Conformity and Identity declaration	CE	OEM	Yes	Yes		

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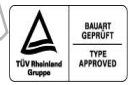
		E	European Electromagnetic Compatibility Directive 2004/108/EC EN55022:2006, EN55024:1998+A1:2001+A2:2003, EN61000-3-2:2006, EN61000-3-3:1995+A1:2001+A2:2005	EMC/CE test report		OEM	Yes	Yes		HDMI have to test PC mode and DVD mode
	GERMANY	Sa	EN60950-1:2001	TUV certificate		OEM	Optional	No		Philips is OEM license holder
		O	LCD: ISO13406-2, pr EN 50279:1998	TUV-ERG certificate and TUV ISO13406-2 report		OEM	Optional	No		Philips is OEM license holder
		O	GS-Mark / EK1-ITB 2000	TUV-GS certificate		OEM	Optional	No		Philips is OEM license holder
		O	ISO13406-2	TUV ISO13406-2 certificate		OEM	Optional	No		Philips is OEM license holder

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		O	TUV MPR-II	TUV MPR-II certificate		OEM	Optional	No		Philips is OEM license holder
	SWEDEN	Sa	EN60950-1:2001	SEMKO certificate		OEM	Optional	No		Philips is license holder
		O	TCO'99	TCO report and certificate		OEM	Optional	No		To add all sales name into certificate
		O	TCO'03, or TCO'0x supersedes new standard	TCO report and certificate		OEM	Optional	No		To add all sales name into certificate
		O	TCO'06	TCO report and certificate		OEM	Optional	No		To add all sales name into certificate
	Switzerland	Sa	EN60950-1:2001	S+ PZ1 certificate		OEM	Yes	No		Supplier to contact Philips NSO Heidi and apply for Switzerland certification. Supplier to pay approbation cost 2450 CHF each model and each extend model 300 CHF. To provide CB, EMC report, Identity Declaration, DFU, Label, Circuit diagram, PO, Power of Attorney. To add all sales name
		E	EN55020, EN55024, IEC61000-3-2, IEC61000-3-3	S+ PZ1 ce rtificate			Yes	No		

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										and /00, /05, /69 into certificate.
		O	EMF EN 50392	EN 50392 report			Yes	No	1 set	Supplier ship out 1 samples to Netherlands and provide EN50392 report (test fee 750EU)
	Eastern Europe	Sa	EN60950-1:2001	Certificate of Conformity		Philips	Yes	Yes	3 sets	Supplier ship out 3 samples to Hungary and pay transportation cost. Supplier to provide CB, EMC report, Identity Declaration, DFU, Label, Circuit diagram.
		E	EN55022,EN55024, IEC61000-3-2 ,IEC61000-3-3	Certificate of Conformity		Philips	Yes	Yes		
	RUSSIA	Sa	GOST R 50377-1992	GOST certificate	AE68	Philips	Yes	Yes		Supplier to provide CB, EMC, ISO13460-2 report and TCO certificate
	ISRAEL	Sa	IS 1121, IEC60950/IEC60950-1	Certificate of Conformity		OEM	Yes	No		Need to provide Israel user manual and Local representative
	ISRAEL	E	CISPR22	Certificate of Conformity		OEM	Yes	No		

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AP	KOREA	Sa	Korean Safety Control law IEC 60950	EK certificate		OEM	Yes	No	—	**NOT REQUIRED**
		E	Regulations laws: EMI 1996-78, 80. EMS 1996-79,81	MIC certificate		OEM	Yes	No	—	**NOT REQUIRED**
	SINGAPORE	Sa	IEC60950	PSB certificate		OEM	Yes	Yes		Supplier to provide local representative
	CHINA	Sa	GB4943-2001	CCC certificate		OEM	Yes	Yes		Supplier have to check regulation information on rating label, carter label, user manual to meet all mandatory regulation. Supplier to provide CCC permission of printing
		E	GB9254-1998; 17625.1-2003	CCC certificate		OEM	Yes	Yes		
		O	CSC/G1205-2004	CECP certificate		OEM	Optional	No		
	TAIWAN	Sa	CNS-14336 (IEC 60950-1)	BSMI certificate		OEM	Yes	Yes		To add all sales name into certificate
		E	CNS-13438 (CISPR22) Class B	BSMI certificate		OEM	Yes	Yes		
		O	Criteria 18 (Monitor) (LCD)	Green Mark / certificate		OEM	Optional	No		**NOT REQUIRED**

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	AUSTRALIA / NEW-ZEALAND	E	AS/NZS3548:1995 AS/NZS CISPR22: 2002 Class B	CB, EMC report		OEM	Yes	Yes	1 set	Supplier ship out 1 sample to Australia and pay transportation cost, Supplier to apply for C-Tick through Philips NSO
	Saudi Arabia	Sa	EN60950-1:2001	SASO		OEM	Yes	Yes		
	Saudi Arabia	Sa	EN55022, EN61000-3-2, EN61000-3-3, EN55024	SASO		OEM	Yes	Yes		
	Japan	E	VCCI class B (CISPR 22)	VCCI Certificate		OEM	Yes	No		**NOT REQUIRED**
	Cambodia	Sa	EN60950-1:2001	ISC certificate		OEM	Yes	No		
	Kuwait	Sa	EN60950-1:2001, 'Kuwait Conformity Assurance Scheme' (KUCAS)	KUCAS registration		OEM	Yes	Yes		
NAFTA	USA	Sa	UL 60950-1: 2003	UL certificate, CUL		OEM	Optional	Yes		

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		E	FCC Part 15 Class B	FCC report and DOC	FC	OEM	Yes	Yes		To list manufacture in FCC report
		O	Energy Star	EPA test data	ENERGY STAR	OEM	Optional	No		
	CANADA	Sa	CSA C22.2 No 60950	CSA certificate or CUL	LR58447	OEM	Optional	No		
		E	ICES-003 issue 3	Statement on label		OEM	Yes	Yes		
	MEXICO	Sa	NOM-019-SCFI-1 994	NOM certificate	NOM NYCE	Philips	Yes	No	2 sets	**NOT REQUIRED**
LATAM	Argentina	Sa	EN60950-1:2001	TUV S-mark or IRAM	TÜV Rheinland Argentina S.A.	OEM	Yes	No		
	Brazil	Sa	UL 60950-1: 2003	UL certificate or CUL		OEM	Optional	No		
		E	FCC Part 15 Class B	FCC report and DOC		OEM	Yes	Yes		
		O	Energy Star	EPA test data		OEM	Optional	No		
		O	TCO'99	TCO report and certificate		OEM	Optional	No		To add all sales name into certificate
		O	TCO'03	TCO report and certificate		OEM	Optional	No		To add all sales name into certificate
		O	TCO'06	TCO report and certificate		OEM	Optional	No		To add all sales name into certificate

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South Africa	SOUTH AFRICA	Sa	SABS IEC 60950 and IEC 60950-1	Certificate of Conformity	SABS	Philips	Yes	Yes		Supplier to provide CB, EMC report
		E	EN55022 or Crisper 22	Certificate of Conformity		Philips	Yes	Yes		

Sa = Safety

E = Electromagnetic Compatibility

O = Other which including recycling, energy saving, ergonomics, Green Mark

X=X-Ray

Remark:

1. Supplier to provide all approbation documents, samples before CR
2. Supplier to pay approbation samples and transportation cost.
3. Suppliers to pay Switzerland approbation cost 2450 CHF and provide EN50392 report.
4. HDMI has to test PC mode if user manual have HDMI connect to PC function
5. Supplier to provide EMC, safety report if monitor with portrait and landscape function
6. AC/DC adaptors have to meet California Energy Commission requirement
7. Suppliers have to support Philips NSO to get local approbation.
8. Supplier have to check regulation information on rating label, carton label, user manual to meet all mandatory regulation
9. Suppliers need to add Philips sales name, model no into BSMI, TCO, EK, MIC certificate
10. Suppliers have to apply all mandatory regulation based on sales country.

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10.2 EMC Requirements

Supplier DVT EMI test result must be submitted prior to DVT samples delivery, and PVT EMI test result must be submitted again prior to PVT samples delivery, which also has to meet Philips' immunity testing specification.

10.3 RoHS

Restriction on the use of certain hazardous substances.

Lead, Cadmium, Mercury, Hexavalent Chromium, Polybrominated Bipheny1 (PBB) and Polybrominated Bipheny1 Ether (PBDE)(flame retardant).

10.4 WEEE

Producer (Philips) responsible for retailer take back schemes and recycling.

--System implemented.

--Collection and recycle targets.

10.5 Ongoing Regulatory

There's a possibility that other regulatory certificates will be required during the life of the product. It is the responsibility of the supplier to provide related documentation.

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TELEVISION/MONITOR SAFFTY GUIDELINES FOR THE PROFESSIONAL SERVICE TECHNICIAN

Safety Checks
After the original service problem has been corrected,a complete safety check should be made. Be sure to check over the entire set, not just the areas where you have worked. Some previous servicer may have left an unsafe condition,which could be unknowingly passed on to your customer. Be sure to check all of the following:

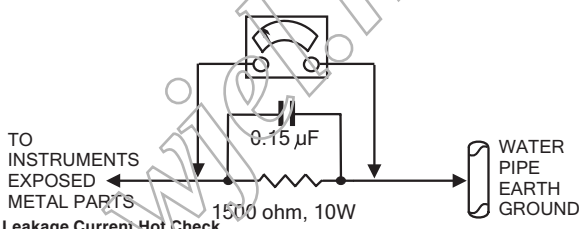
Fire and Shock Hazard
1. Be sure all components are positioned in such a way as to avoid the possibility of adjacent component shorts. This is especially important on those chassis which are transported to and from the service shop.
2. Never release a repaired unit unless all protective devices such as insulators, barries, covers, strain reliefs, and other hardware have been installed in accordance with the original design.
3. Soldering and wiring must be inspected to locate possible cold solder joints,solder splashes,sharp solder points, frayed leads, pinched leads, or damaged insulation (including the ac cord).Be certain to remove loose solder balls and all other loose foreign particles.
4. Check across-the-line components and other components for physical evidence of damage or deterioration and replace if necessary. Follow original layout,lead length, and dress.
5. No lead or component should touch a receiving tube or a resistor rated at 1 watt or more. Lead tension around protruding metal surfaces or edges must be avoided.
6. Critical components having special safety characteristics are identified with ans by the Ref. No. in the parts list and enclosed within a broken line * (where several critical components are grouped in one area) along with the safety symbols on the schematic diagrams and/or exploded views.
7. When servicing any unit, always use a separate isolation transformer for the chassis Failure to use a separate isolation transformer may expose you to possible shock hazard, and may cause damage to servicing instruments.
8. Many electronic products use a polarized ac line cord (one wide pin on the plug.) Defeating this safety feature may create a potential hazard to the service and the user. Extension cords which do not incorporate the polarizing feature should never be used.
9. After reassembly of the unit, always perform an leakage test or resistance test from the line cord to all exposed metal parts of the cabinet. Also check all metal control shafts(with knobs removed), antenna terminals, handles, screws, etc. to be sure the unit may be safety operated without danger of electrical shock.

* Broken line

Implosion
1. All picture tubes used in current model receivers are equipped with an integral implosion system. Care should always be used, and safety glasses worn,whenever handling any picture tube. Avoid scratching or otherwise damaging the picture tube during installation.
2. Use only replacement tubes specified by the manufacturer.

X-radiation
1. Be sure procedures and instructions to all your service personnel cover the subject of X-radiation. Potential sources of X-rays in TV receivers are the picture tube and the high voltage circuits. The basic precaution which must be exercised is to keep the high voltage at the factory recommended level.
2. To avoid possible exposure to X-radiation and electrical shock, only the manufacturer's specified anode connectors must be used.
3. It is essential that the service technician has an accurate HV meter available at all times. The calibration of this meter should be checked periodically against a reference standard.
4. When the HV circuitry is operating properly there is no possibility of an x-radiation problem. High voltage should always be kept at the manufacturer's rated value-no higher - for optimum performance. Every time a color set is serviced, the brightness should be run up and down while monitoring the HV with a meter to be certain that the HV is regulated correctly and does not exceed the specified value. We suggest that you and your technicians review test procedures so that HV and HV regulation are always checked as a standard servicing procedure, and the reason for this prudent routine is clearly understood by everyone. It is important to use an accurate and reliable HV meter. It is recommended that the HV recorded on each customer's invoice, which will demonstrate a proper concern for the customer's safety.
5. When troubleshooting and making test measurements in a receiver with a problem of excessive high voltage, reduce the line voltage by means of a Variac to bring the HV into acceptable limits while troubleshooting. Do not operate the chassis longer than necessary to locate the cause of the excessive HV.
6. New picture tubes are specifically designed to withstand higher operathng voltages without creating undesirable X-radiation. It is strongly recommended that any shop test fixture which is to be used with the new higher voltage chassis be equipped with one of the new type tubes designed for this service. Addition of a permanently connected HV meter to the shop test fixture is advisable. The CRT types used in these new sets should never be replaced with any other types, as this may result in excessive X-radiation.
7. It is essential to use the specified picture tube to avoid a possible X-diation problem.
8. Most TV receivers contain some type of emergency "Hold Down" circuit to prevent HV from rising to excessive levels in the presence of a failure mode. These various circuits should be understood by all technicians servicing them, especially since many hold down circuits are inoperative as long as the receiver performs normally.

Leakage Current Cold Check
1. Unplug the ac line cord and connect a jumper between the two prongs of the plug.
2. Turn on the power switch.
3. Measure the resistance value between the jumpered ac plug and all exposed cabinet parts of the receiver, such as screw heads, antennas, and control shafts. When the exposed metallic part has a return path to the chassis, the reading should be between 1 megohm and 5.2 megohms. When the exposed metal does not have a return path to the chassis, the reading must be infinity. Remove the jumper from the ac line cord.



Leakage Current Hot Check
1. Do not use an isolation transformer for this test. Plug the completely reassembled receiver directly into the ac outlet.
2. Connect a 1.5k, 10w resistor paralleled by a 0.15uf. capacitor between each exposed metallic cabinet part and a good earth ground such as a water pipe, as shown above.
3. Use an ac voltmeter with at least 5000 ohms volt sensitivity to measure the potential across the resistor.
4. The potential at any point should not exceed 0.75 volts. A leakage current tester may be used to make this test; leakage current must not exceed 0.5 milliamps. If a measurement is outside of the specified limits, there is a possibility of shock hazard. The receiver should be repaired and rechecked before returning it to the customer.
5. Repeat the above procedure with the ac plug reversed.(Note: An ac adapter is necessary when a polarized plug is used. Do not defeat the polarizing feature of the plug.)

Picture Tube Replacement
The primary source of X-radiation in this television receiver is the picture tube. The picture tube utilized in this chassis is specially constructed to limit X-radiation emissions. For continued X-radiation protection, the replacement tube must be the same type as the original, including suffix letter, or a Philips approved type.

Parts Replacement
Many electrical and mechanical parts in Philips television sets have special safety related characteristics. These characteristics are often not evident from visual inspection nor can the protection afforded by them necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. The use of a substitute part which does not have the same safety characteristics as the Philips recommended replacement part shown in this service manual may create shock, fire, or other hazards

WARNING : Before removing the CRT anode cap, turn the unit **OFF** and short the HIGH VOLTAGE to the CRT DAG ground.
SERVICE NOTE : The CRT DAG is not at chassis ground.

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